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MOUNTAIN FOOTHILLS

GRAZING MANAGEMENT PROGRAM

DRAFT

Environmental Impact Statement

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
BUTTE DISTRICT OFFICE

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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
222 North 32nd Street
P.O. Box 30157
Billings, Montana 59107

1792 (070)

February 1, 1980

Dear Reader:

The ***Mountain Foothills Grazing Management Program Draft Environmental Impact Statement*** is presented for your review and comment. The document describes a grazing management program proposed for approximately 955,000 acres of public land administered by the Bureau of Land Management in the Dillon Resource Area. Five alternatives to the proposed action also are presented for consideration. These six possible courses of action are described briefly in the abstract in the front of the document and more completely in chapter one, while the environmental consequences of each are considered in chapter three.

Written comments from interested citizens and public agencies will be accepted until May 16, 1980. Comments should be sent to R. Gregg Berry, Project Manager, Butte District Office, BLM, P.O. Box 308, Butte Montana 59701; telephone (406)723-6561, extension 2419.

After the comments received have been reviewed, a final environmental impact statement will be prepared. Unless the changes are extensive, the final statement may consist of only the comments, responses to the comments, and errata sheets to update the information contained in the draft document; therefore, interested persons should retain their copies of the draft EIS.

Meetings for public participation have been scheduled as follows:

Butte, Montana — 7 p.m., April 14, 1980, BLM Office, Butte Industrial Park

Dillon, Montana — 7 p.m., April 15, 1980, Saint Rose Center multi-purpose room

Sheridan, Montana — 7 p.m., April 16, 1980, Sheridan Elementary School

Lima, Montana — 7 p.m., April 17, 1980, Lima School multi-purpose room

Testimony received through written comments or at the public meetings will be considered during preparation of the final environmental impact statement. No decision on the proposed grazing management program will be made until the final environmental impact statement is completed.

Sincerely yours,

Michael J. Penfold

Michael J. Penfold
State Director

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DEPARTMENT OF THE INTERIOR

DRAFT ENVIRONMENTAL STATEMENT
ON
GRAZING MANAGEMENT IN THE MOUNTAIN FOOTHILLS OF MONTANA

Prepared By

BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

Michael J. Penfold

STATE DIRECTOR
MONTANA STATE OFFICE

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MOUNTAIN FOOTHILLS GRAZING MANAGEMENT PROGRAM DRAFT ENVIRONMENTAL IMPACT STATEMENT

BEAVERHEAD, DEER LODGE, MADISON, AND SILVER BOW COUNTIES MONTANA

This Draft Environmental Impact Statement (EIS) discusses a proposed grazing management program for approximately 955,000 acres of public land administered by the Bureau of Land Management in the Dillon Resource Area. Five alternative courses of action have been analyzed on an equal basis with the proposed action. From these six possible courses of action, a final multiple use plan will be selected. Impacts of each alternative have been analyzed for the four-year implementation period, 1981 through 1984 (the short term) and for a 25-year period following implementation, 1985 to 2010 (the long term).

The proposed action (A) would adjust the current grazing management to improve range condition by 2010, with corresponding improvement in erosion condition and in some wildlife habitats. Some reductions would occur in ranch income in the short term, but the long-term effect on ranch income would be positive. The limited action alternative (B) would continue the present management program with the same adjustment in the current permitted livestock use as the proposed action. Range condition would deteriorate slightly, with some decrease in the amount of forage available to livestock in the long term. Wildlife habitat would be essentially unchanged; hunting opportunities would be somewhat poorer, and the economic impacts would be the same as those of the proposed action. The alternative to improve watershed values and wildlife habitat (C) would reduce livestock use and implement systems to improve watershed, recreation opportunities, and wildlife habitats. Erosion condition, ecologic range condition, and hunting and fishing opportunities would improve; however, access to recreation areas could be impeded by added fences. Small ranch income would be reduced. The alternative for accelerated livestock forage development (D) would implement vegetation manipulation practices to remove or suppress undesirable plants and to improve range condition. Short-term reductions in available grazing would be offset by long-term increases. Erosion condition would not change significantly. Adverse effects would occur on wildlife habitat, recreation access, and hunting and fishing opportunities. Overall ranch income would increase slightly in the long term. The no action alternative (E) would "freeze" the current grazing management program at its present level, causing a slight decline in erosion condition and a substantial decline in range condition. Wildlife habitats would be unchanged. Ranch income would appear unchanged "on paper"; however, the amount of available forage probably would decrease, so that ranch income also could decrease. The alternative to eliminate livestock grazing from public lands (F) would bring about some improvement in erosion condition, slight improvement in ecologic range condition, and significant improvements in wildlife habitats and recreation opportunities; however, possible fences could impede recreation access. Ranch income would be reduced significantly. The effect of the proposed action or any of the alternatives on the regional economy would be insignificant.

The major components of the six alternatives are presented for public review in this EIS. The document is in two parts—the text and the map supplement. The location of the EIS study area within the state and the division of the study area into two planning units is shown on the Location map in the text volume.

For further information, contact R. Gregg Berry, Project Manager, Butte District Office, Bureau of Land Management, P. O. Box 308, Butte, Montana 59701; telephone (406)723-6561, extension 2419. Comments must be received by May 16, 1980.

FEBRUARY 1980

SUMMARY

The Mountain Foothills Environmental Impact Statement (EIS) involves the Bureau of Land Management's Dillon Resource Area, encompassing the four southwestern counties of Montana: Beaverhead, Deer Lodge, Madison, and Silver Bow. This study area comprises approximately 7 million acres, of which about 955,000 acres (14 percent) are administered by the Bureau of Land Management (BLM).

Initial soil and vegetation inventories and water quality and quantity studies began in 1976. Throughout the entire planning process and EIS preparation, information and concerns were solicited from ranchers, public land use groups, conservation organizations, special interest groups, service organizations, conservation districts, local universities, and private citizens. Further information was obtained through close coordination with other land and resource management agencies or individuals, including the Forest Service and the Soil Conservation Service, U.S. Department of Agriculture; the Montana Department of State Lands, the Montana Department of Natural Resources, the Montana Department of Fish, Wildlife, and Parks, the U.S. Science and Education Administration, county planning boards, and private landowners.

From May 6 through May 24, 1978, five open house workshops were held in the towns of Dillon, Butte, Sheridan, Ennis, and Lima. In addition, more than 1,100 brochures that outlined the major resource issues and requested public input were distributed to a wide cross-section of the public. More than 100 written comments were returned.

On the basis of the resource inventories and the comments and information received through the public participation process, a comprehensive land use plan was developed. This multiple use plan is identified as the proposed action in this statement. In addition, five alternative courses of action have been analyzed on an equal basis. From these six possible courses of action, decision-makers will be able to select the final management direction. The significant issues identified by the public and resource specialists during the analysis process have been incorporated into one or more of the alternatives. To what degree the issues are resolved depends on the management program selected. It is anticipated that the final decision will include a combination of several alternatives.

Several major areas of controversy raised by the public or identified by the resource specialists needed to be addressed in this statement. Wildlife is a major concern in the study area because of the quality, variety, and abundance of habitat. Elk populations are among the highest in the state, and moose, deer, and antelope are other big game animals highly sought by hunters from throughout the United States.

One of the more significant wildlife issues is the need to improve or maintain wildlife habitat in the face of conflicting resource demands, particularly livestock grazing and off-road vehicle use. Protection of the habitats of the threatened grizzly bear and the endangered northern Rocky Mountain wolf, peregrine falcon, and bald eagle is also a major concern.

Approximately 150 miles of perennial streams on public lands provide fishing opportunities in the study area. The Madison and Big Hole Rivers are nationally known "blue ribbon" fisheries whose headwaters are located here. Because of the high quality of fishing, the study area provides about 40 percent of all fishing use within Montana.

Riparian surveys indicate that 47 percent (211 miles) of the 450 miles of stream bank habitat in the study area is in unsatisfactory condition. This adversely influences downstream fishery production and on-site habitat values. Management decisions made to improve this situation will affect livestock grazing.

The deteriorating condition of the rangeland is another major issue. Of the 955,000 acres of public lands in the study area, approximately 30 percent (282,000 acres) is in poor to fair ecological condition, while 54 percent is in good to excellent condition. Sixteen percent of the rangeland was not classified because those areas are primarily wasteland or are otherwise unsuitable for livestock grazing. The trend in rangeland condition is improving on about 13 percent of the public lands, while 27 percent is declining. Of the remainder, about 44 percent is in a static situation and 16 percent is undetermined.

Past grazing practices are primarily responsible for the present rangeland condition and trend. Some of the problems that exist are due in part to authorization of grazing too early in the spring, failure to provide enough rest during the growing season, and overuse of the forage by grazing animals.

About 150,000 acres have been classified in critical or severe erosion condition, with an apparent downward trend on several thousand acres in moderate erosion condition. Other watershed concerns include some severely eroded stream channels, soil compaction in certain areas, and present livestock management practices that conflict with the riparian and water quality management objectives of increasing ground cover and vegetation density in order to reduce runoff and erosion.

Several of the alternative courses of action would reduce the current permitted livestock use (125,377 AUMs) within the entire study area by an average of 12.2 percent, to an initial stocking level of 110,033 AUMs. This is a major point of controversy with the local livestock industry. If this reduction were implemented in conjunction with intensive grazing management, it would reverse the declining trend in range condition, improve wildlife habitat, and stabilize the watershed.

The six alternative courses of action that are analyzed in this statement, and from which the final grazing management program will be selected, are (A) the proposed grazing management program, (B) limited action, (C) improved watershed values and wildlife habitat, (D) accelerated livestock forage development, (E) no action, and (F) elimination of livestock grazing from public lands in the study area.

ALTERNATIVE A: THE PROPOSED GRAZING MANAGEMENT PROGRAM

The proposed action includes (1) continued operation of 26 existing AMPs, (2) revision of 22 existing AMPs, (3) implementation of 138 proposed AMPs, (4) less intensive grazing management on 281 allotments where AMPs are not proposed, and (5) continuation of unallotted status (not allotted to livestock grazing) on approximately 41,190 acres of public land.

Riparian habitats were considered by excluding grazing from 25.9 miles of stream, of which 20.1 miles are currently ungrazed, and implementing grazing systems designed to meet riparian needs on 70 percent (305 miles) of the total riparian habitat in the study area.

Acreages of good and excellent ecological range condition are projected to increase by 16 percent by the year 2010, while the acreage in poor and fair condition would decrease by 31 percent. At the same time, there would be a significant improvement in erosion condition, with a 14 percent reduction in sediment yield.

The proposed initial livestock use has been established for each allotment. Overall, this amounts to a 12.2 percent reduction in AUMs from the current permitted use. This stocking level takes into consideration livestock grazing suitability, range condition, vegetation allocations to wildlife, and maintenance of or improvement in watershed condition. Future adjustments up or down would be based on records of actual use, studies of trends in range condition, range utilization studies, and guidance from the Management Framework Plan.

On 114 allotments, AUM allocation increases would total 7,281 AUMs. Proposed decreases on 251 allotments, totaling 22,625 AUMs, would make it necessary for operators to seek alternative sources of livestock forage or supplemental feed. It is projected that by the year 2010 there would be a 13 percent increase in livestock AUMs over the current permitted stocking rate.

The total implementation cost for range developments including survey, design, and workmonths is substantial, amounting to $1,525,000.

Elk winter-spring habitats would improve moderately, but summer-fall habitats would remain 40 to 50 percent unsatisfactory, a major residual adverse impact. The condition of mule deer winter-spring habitats, antelope summer-fall habitats, waterfowl nesting, and sage grouse habitats would improve substantially. Riparian habitat in satisfactory condition would improve from 53 percent (241 miles) to 70 percent (305 miles). Largely satisfactory habitats would continue for mule deer and elk summer-fall use, antelope winter-spring use, and yearlong use by moose and bighorn sheep.

In the short term, the income of 137 of the 216 ranch operations would be reduced by a total of $322,380 annually. Of the 137 operations, 39 would sustain reductions in annual net ranch income averaging 16 percent. The average reduction in annual net ranch income for the other 98 would be less than 3 percent. Also in the short term, 46 ranch operations would have increased income totaling $38,980 annually, while 33 ranch operations would not be affected.

In the long term, the income of 103 ranch operations would continue to be reduced by a total of $179,780 annually. However, increased income accruing to 101 ranch operations would total $232,760. Twelve ranch operations would not be affected. The overall impact on income for the affected ranch operations would be positive by the year 2010, with the total increase amounting to $52,980.

ALTERNATIVE B: LIMITED ACTION

This alternative assumes continued operation of the 48 existing AMPs with in the study area. Existing range developments would be maintained, and aminimal number of new range developments would be constructed in connection with 22 existing AMPs identified for revision. Livestock use would be adjusted to the new stocking rate of 110,033 AUMs, as described in the proposed action.

This alternative also assumes no change in the status of the non-AMP and unallotted areas and no implementation of proposed AMPs. Range use supervision, soil/vegetation monitoring, and project development would continue at the present level.

Range condition would improve less under Alternative B than under any other alternative except the one proposing no action (Alternative E). The acreage of range in poor and fair condition would increase by 6 percent, while the acreage in good to excellent condition would decrease by 16 percent. Sediment yield would decrease by 9 percent in the long term. The AUMs projected to be harvested by livestock by the year 2010 would be 5 percent less than the current permitted use.

All wildlife habitats would remain essentially unchanged, with some improvement in elk winter habitat. The quality of hunting opportunities would exhibit a moderately adverse impact in the long term.

The total implementation costs would be minimal in comparison to the other alternatives; the cost would be about $202,000.

The short-term economic impacts would be the same as those described for the proposed action. In the long term, the income from 124 ranch operations would be reduced from the current level by a total of $275,650 annually. This is an average reduction in annual net ranch income of a little more than 6 percent. Also in the long term, 59 ranch operations would receive income increases totaling $74,130 annually. This would somewhat offset the total reductions in income for the study area, so that the 183 ranches would sustain an overall reduction in income of $201,520 annually. The direct and indirect economic impact on the regional economy would be insignificant.

ALTERNATIVE C: IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT

This alternative proposes a selective level of livestock use of 74,785 AUMs, which is 50,592 AUMs less than the existing stocking level. It also assumes implementation of range developments and grazing systems that would improve watershed and recreation values and wildlife habitat, and it assumes that no forage produced in the future in excess of the current situation would be allocated to livestock.

Lower stocking levels for some allotments proposed by this alternative are based on the following criteria: (1) elimination of livestock grazing from April 1 through June 15, (2) allocation of vegetation on most areas of critical or severe erosion condition to watershed, (3) implementation of grazing systems that incorporate an additional rest period, (4) pasture capacity stocking, (5) allocation of vegetation on the basis of the amount and type of fish and wildlife habitat, and (6) exclusion of grazing to resolve use conflicts or improve recreation opportunities in specific recreation areas.

Each allotment grazed in April, May, and June was analyzed to determine if grazing season adjustments were necessary to meet watershed and wildlife objectives. As a consequence, under this alternative the proposed initial stocking level would be reduced by 1,692 AUMs by the removal of livestock during all or part of the period from April 1 through June 15.

Another factor considered in the development of the reduced level of livestock use was the wildlife habitat needs within each allotment. Livestock numbers would be reduced or eliminated in specific key wildlife areas through revision in existing grazing systems, implementation of new systems, or total livestock exclusion. These changes would account for the deduction of 20,905 additional AUMs from the stocking level proposed in Alternative A.

Approximately 52 percent of the total reduction from the current permitted use in this alternative is based on adjustments for wildlife needs. Wherever the need for livestock reduction was identified for the benefit of both watershed and wildlife in the same geographic area, only the larger reduction figure was used in calculating stocking rates in order to avoid double counting.

This alternative would be exceeded in the improvement of wildlife habitats only by the alternative to eliminate livestock grazing. Major improvement would occur in mule deer winter-spring habitats, elk habitats, antelope summer-fall habitats, waterfowl nesting areas, and all sage grouse habitats. Riparian habitats would improve from 53 percent (239 miles) in satisfactory condition to 92 percent (414 miles).

So that riparian habitats could be improved from unsatisfactory to satisfactory condition under this alternative, riparian habitat would be given special consideration through (1) protective fencing and exclusion of grazing on 39.2 miles of stream as opposed to 20.1 miles ungrazed at present, (2) stocking reductions totaling 4,879 AUMs, and (3) changes in 34 grazing systems that were outlined in the proposed action.

Sediment yields in the study area would total 1,548,300 tons per year by the year 2010, down 38 percent from the existing situation. Except for the alternative to eliminate livestock grazing, this alternative would effect the greatest improvement in erosion condition.

It is projected that lands in good to excellent ecologic range condition would increase by 17 percent, while lands now in poor to fair condition would decrease by 32 percent.

The quality of hunting and fishing opportunities would be significantly improved; however, some recreation access would be made more difficult because of additional fence construction.

On 325 allotments, a total decrease of 54,330 AUMs would make it necessary for ranch operators to seek alternative livestock forage. There would be a total increase of 3,738 AUMs on 97 allotments. The initital stocking level would be 40 percent less than current permitted use, with no increases allocated to livestock use in the long term.

The total implementation cost would be significant, amounting to $1,805,000.

In both the short and long terms, 190 ranch operations would sustain reductions in income totaling $807,520 annually. The impact on 45 small commercial ranch operations would be most significant, with net ranch income being reduced an average of about 20 percent from current levels. Probably 15 to 20 of those operations with higher than average impacts would be forced out of business, or the operator and his family would be forced to seek supplemental off-ranch employment. Thirteen ranch operations would share a small increase in income totaling $6,140 annually.

Direct and indirect economic impact on the regional economy would be insignificant.

ALTERNATIVE D: ACCELERATED LIVESTOCK FORAGE DEVELOPMENT

This alternative would provide for accelerated livestock forage development by the use of extensive vegetation manipulation practices (sagebrush spraying, prescribed burning, and reseeding). The primary objectives would be to remove or suppress undesirable plant species, to increase livestock forage production, and to accelerate range condition improvement. This alternative projects 37,397 livestock AUMs more than the 125,377 AUMs of current permitted use, or a stocking level of 162,774 AUMs. All forage produced in the future in excess of the current situation would be allocated exclusively to livestock after proper use factors were considered.

Range developments for this alternative would be the same as those for Alternative A, the proposed action, except for the number of acres prescribed for vegetation manipulation. Under Alternative D, there would be an additional 24,442 acres of prescribed burning, 34,360 acres of sagebrush spraying, and 13,152 acres of plowing and seeding or interseeding. It is assumed while public land was unavailable for grazing during rest or deferment following land treatment, the necessary grazing would be furnished by nonfederal lands. The temporary loss of AUMs would be a short-term impact, and the land made unavailable could be restored to use in approximately two years after land treatment.

The greatest amount of land disturbance, 68,974 acres, would result from range developments associated with this alternative. Erosion losses from these activities would total 1,096,348 tons. However, the overall annual sediment yield would be reduced by 13 percent in the long term, to 2,243,300 tons. No significant erosion condition changes would occur.

Of all the alternatives, this action would bring about the greatest improvement in ecologic range condition. Lands in excellent and good condition would improve 20 percent, while lands in poor to fair condition would decrease by 38 percent.

Major declines in habitat condition would occur on mule deer summer-fall habitats, elk and antelope winter-spring habitats, bighorn yearlong habitats, and all seasonal sage grouse habitats. Deer, elk, riparian, and waterfowl habitats would remain in largely unsatisfactory condition.

Significant adverse impacts to the quality of hunting and fishing opportunities would occur. Recreation access would be significantly reduced; at the same time, significant decreases in naturalness and in opportunities for primitive recreation and solitude would occur.

On 226 allotments, livestock use reductions would amount to 14,627 AUMs. Increases totaling 52,001 AUMs would involve 216 allotments. The initial stocking level and the AUMs projected to be harvested by livestock after 25 years would be the same (162,774 AUMs), or 30 percent above the current permitted use.

Except for the fencing costs that could be incurred on a worst-case basis under the alternative to eliminate livestock grazing, this alternative would have the greatest implementation costs, $2,657,555.

Even with accelerated livestock forage development, 100 ranch operations would sustain income reductions totaling $165,810 annually in both the short and long terms; however, the average reductions in net ranch income would be less than 5 percent. The annual income of 107 ranch operations would be increased by a total of $399,660 over current levels. This is an average increase in annual net ranch income of about 7.5 percent.

Overall, ranch income would increase $233,850 annually in the study area. Economic impacts would be the same for the short term and the long term. Again, as with the other alternatives, the direct and indirect impact on the regional economy would be insignificant.

ALTERNATIVE E: NO ACTION

A "no action" alternative is required by the Council on Environmental Quality (CEQ), the Department of the Interior, and the Bureau of Land Management. This no action alternative is defined in the BLM Manual, section 1792.44E8, as the "decision to forgo the project and do nothing different." It is included in this statement for comparison purposes, and it assumes continuation of the present grazing management program frozen at the point in time that the proposal is being written. The current permitted use is 125,377 AUMs.

Changes anticipated for the future are not included, nor would needed adjustments in livestock use levels, as identified during the recent inventory, be included. Revision of existing AMPs would not occur, nor would the gradual implementation of proposed AMPs. This alternative is described and analyzed on the basis of the present permitted use.

With continuation of present levels of livestock use, a slight decline in erosion condition would occur. Increases in critical and severe erosion condition, from 134,648 to 157,340 acres, or a 14 percent increase, would be worse than for any of the other alternatives. No land disturbance for range developments is projected. Sediment yield would be the highest of all alternatives, 2,583,700 tons per year, which is essentially a continuation of the present losses. Peak discharges and annual runoff would increase.

A substantial decline in range condition would occur. Lands in excellent and good condition would decrease by 4 percent, while lands in poor and fair condition would increase by 9 percent.

All wildlife habitats would remain essentially unchanged; largely unsatisfactory habitats would continue for mule deer and elk winter-spring use, antelope summer-fall use, waterfowl nesting, and all sage grouse use periods. Elk summer-fall habitats would remain 40 to 50 percent unsatisfactory.

The same number of BLM AUMs would be authorized in the future as at present; therefore, at least "on paper," there would appear to be no local or regional economic impacts. However, the actual amount of forage available for livestock would probably decrease, causing ranch operators to reduce livestock numbers; thus, there would probably be some reductions in real ranch income.

ALTERNATIVE F: ELIMINATION OF LIVESTOCK GRAZING FROM PUBLIC LANDS

This alternative assumes elimination of permitted livestock grazing on approximately 950,000 acres of public lands within 518 allotments, for a total livestock use reduction of 125,377 AUMs. No new AMPs would be implemented, all existing AMPs would be terminated, and no range developments (with the possible exception of fencing) would be maintained or constructed unless necessary for other resource programs such as wildlife or watershed.

Either a large number of employees would be required to continually monitor all tracts of public lands to document actual numbers and periods of time that livestock were on public lands in order to successfully pursue trespass cases, or an extensive amount of fencing would be necessary to prevent livestock trespass. The exact amount of fencing needed has not been identified for the entire study area, although the magnitude of a public land fencing effort would be substantial.

Seven townships were identified as typical with regard to fencing needs. On the basis of this sample, the new fencing necessary to totally exclude grazing from public lands was calculated, on a worst-case basis, to be about 2,700 miles. Additionally, an estimated 260 miles of existing fences would need to be altered to meet deer and antelope specifications. The total cost of these developments would be approximately $7 million.

This alternative would result in the greatest improvement in erosion condition; however, plant stagnation could arrest improvement at a lower level than might be expected from plant growth stimulation by periodic grazing. Sediment yields would be significantly decreased, by 67 percent. Peak discharges and annual runoff would also be reduced.

Ecologic range condition would improve slightly, with poor and fair condition range decreasing by 10 percent and good to excellent condition range increasing by 5 percent. Most wildlife habitats would improve to satisfactory condition.

There would be significant increases in naturalness and in the quality of opportunities for hunting, fishing, and solitude, but there would be significant use conflicts regarding access.

Elimination of livestock grazing would reduce the income of all 370 ranch families that lease BLM grazing. The overall net reduction in income to the 216 ranch operations would total $1,862,680 annually, a 13 percent reduction from the present total income level. Twenty-nine ranches are from 21 percent to 60 percent dependent on BLM grazing. At least 18 of these would probably be forced out of business. Even with an income reduction of about $2 million, the direct and indirect impact on the regional economy would not be significant.

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PURPOSE/NEED/ALTERNATIVES

CHAPTER

1

BACKGROUND

PURPOSE AND NEED

The Bureau of Land Management (BLM) proposes an improved grazing management program for the Dillon Resource Area in southwestern Montana. As required by law (Taylor Grazing Act, 1934; Classification and Multiple Use Act, Public Law 88-6071, 1964; and the Federal Land Policy and Management Act of 1976), the BLM is responsible for management "in a manner that will protect the land and its resources from destruction or unnecessary injury, stabilize the livestock industry dependent on public lands, and provide for the orderly use, improvement, development, and rehabilitation of the public lands for livestock grazing consistent with multiple use, sustained yield, environmental, economic, and other objectives" (4100.0-2 Grazing Regulations).

The statement provides for analysis of the proposed management program, identifies impacts on the environment, and addresses possible mitigating measures to reduce any adverse impacts. Another important purpose of this statement is the development and analysis of alternatives to the proposal. Public input, which is a part of the analysis and data gathering process, is required to adequately inform BLM managers of public objectives, goals, and desires concerning this proposed action.

As a result of a resource inventory conducted in 1976, 1977, and 1978, approximately 288,000 acres of public land were identified as needing immediate action for the improvement of range condition. An intensified range management program is needed to improve and stabilize rangeland conditions. These needs would be addressed through immediate livestock use adjustments, application of grazing treatments and systems, initiation of range developments and water developments, and the exclusion of grazing on portions of public lands that were determined to be unsuitable for livestock use.

The following are the purposes of an improved grazing management program:

> To protect and enhance the vegetation resource that provides the foundation for wildlife habitat, livestock forage, forestry products, watershed, recreation, and scenic resources.
>
> To allow operators to convert their present grazing qualifications to the desired kind of livestock--cattle and/or sheep--to stabilize the livestock industry.
>
> To increase the vegetal production within each allotment to be intensively managed.
>
> To permit big game movement by using only the minimum number of miles of fence necessary to implement grazing systems and by using the types of fences that allow for passage of big game, except on sheep allotments, where more restrictive fencing is required. See Appendix 5 for fence specifications.
>
> To protect primitive values and scenic values in the study area.
>
> To increase or maintain stream channel stability and decrease sediment load on approximately 450 miles of stream in the study area, and to maintain or improve fish habitat on about 150 miles of streams.

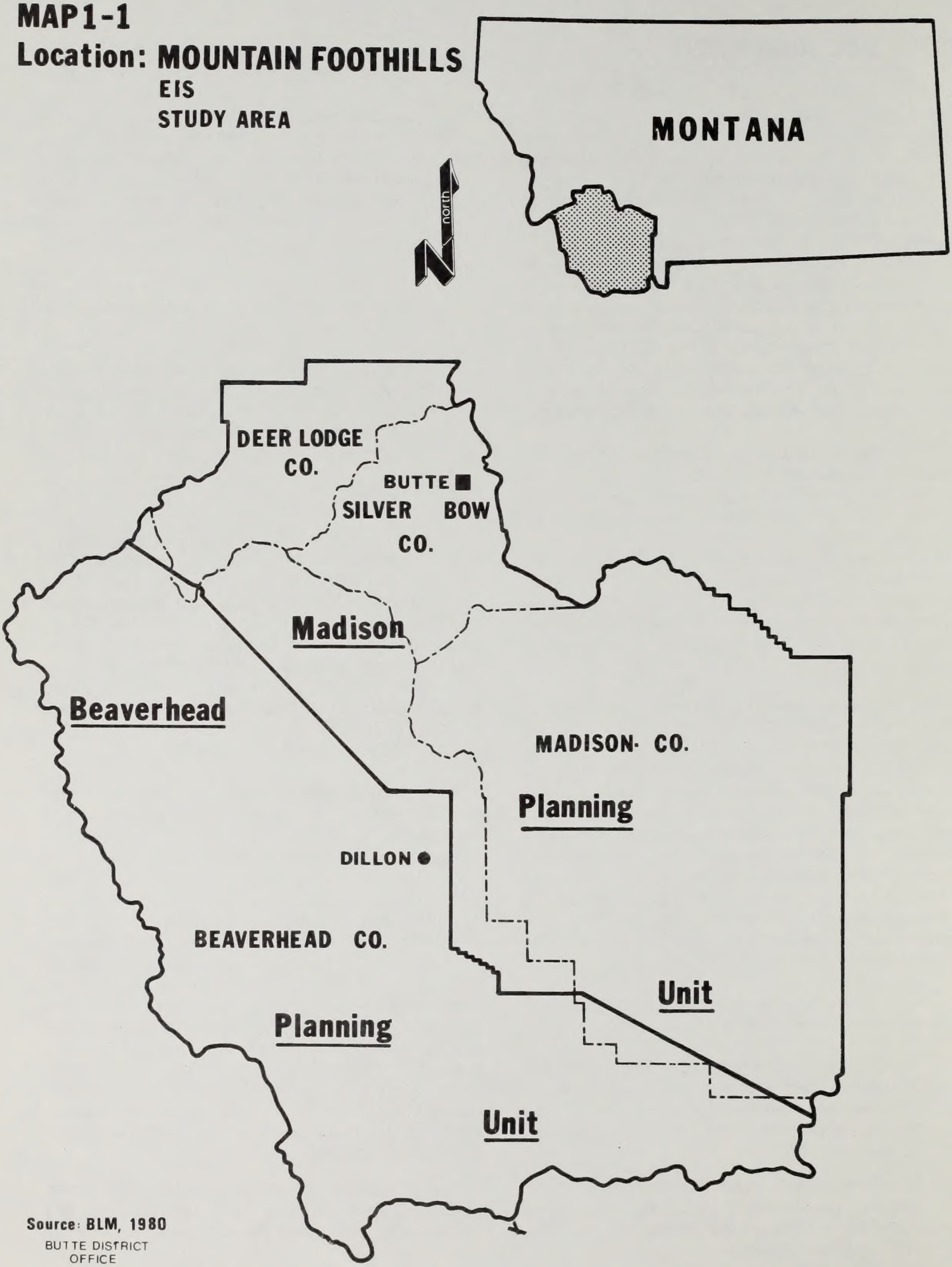
SETTING

The *Mountain Foothills Grazing Management Environmental Impact Statement* (EIS) involves the Bureau of Land Management's Dillon Resource Area (map 1-1), which encompasses the four southwestern counties of Montana: Beaverhead, Deer Lodge, Madison, and Silver Bow. The planning area varies from 80 to 120 miles from north to south, and 75 to 115 miles from east to west. Within the EIS study area, there is a total of 6,755,977 acres. Fourteen percent, or 954,626 acres, is administered by the BLM.

Topographic and natural features within the area are extremely diverse, ranging from nearly level, broad valleys with elevations above 5,000 feet to irrigated uplands, sagebrush/grasslands, and mountain peaks reaching above 11,000 feet. Valley bottoms, where most of the population is concentrated, are heavily oriented to ranching and farming enterprises. Overall, the Dillon Resource Area office handles grazing on public lands for 268 livestock operations, which have grazing privileges within 404 allotments. This number includes ten private grazing associations and one cooperative state grazing district with grazing privileges in the study area. These associations are listed and their organization is explained in Appendix 6. There also are 157 separate areas of public land that are currently unallotted to livestock grazing.

The proposed grazing management program creates 518 allotments from the existing 561 allotments. This total includes 467 allotments

MAP 1-1
Location: MOUNTAIN FOOTHILLS
EIS
STUDY AREA



Source: BLM, 1980
BUTTE DISTRICT
OFFICE

where livestock grazing would be permitted and 51 unalloted areas.

Private lands along the drainage bottoms have been used primarily for the production of forage crops to sustain livestock operations through the winter. These properties also are the lands to which federal grazing privileges are attached. Most of the private landowners are dependent upon additional federal or state lands to sustain a yearlong cattle operation. Grazing on public lands depends on the capability of private lands to sustain livestock during early spring until the forage on public lands is ready for grazing. In addition to livestock grazing, public lands provide wildlife habitat, recreation, and other activities compatible with multiple resource management.

MANAGEMENT GUIDANCE AND RESOURCE COORDINATION

The administration of public lands involves the complex interdependence between lands of different ownership, uses, capabilities, and needs. The EIS area contains lands that are managed by the U.S. Fish and Wildlife Service, the Bureau of Land Management, the Science and Education Administration (SEA), the Forest Service, the state of Montana, the Montana Department of Fish, Wildlife, and Parks, and private parties. The use patterns of these lands have evolved over a long period of time and a strong interdependence has developed in their management. These agencies' responsibilities are described in Appendix 6.

Development of the proposed grazing management program was guided by mandates for the BLM to manage the public lands for multiple use and sustained yield. Proposals are based on integration of physical, biological, economic, and other applicable factors under mandate of the Federal Land Policy Management Act of 1976 (90 Stat. 2743) as applied through a system of land use planning. Beginning with multidisciplinary resource inventories contained in the Unit Resource Analysis (URA) and socioeconomic data analyzed in the Planning Area Analysis (PAA), management decisions are developed in the Management Framework Plan (MFP) (see figure 1-1).

The URA is a detailed compilation of inventory data for various resources such as minerals, range, timber, watershed, wildlife, recreation, and realty management. The URAs outline the current status of each resource and the capabilities and opportunities for its management. A URA is prepared for an identified geographic area called a planning unit. For easier mapping and documentation of resource data, the Dillon Resource Area has been consolidated into two planning units: Beaverhead and Madison. Newly acquired information on these URAs was compiled in 1978.

The Management Framework Plan (MFP) for the Dillon Resource Area establishes coordinated land use allocations for all resources and sets up objectives and constraints for each resource and support activity. Each resource specialist identifies the full potential of the resource in his or her field. The overlaps and conflicts are reconciled through extensive study and discussion, including public input.

Major MFP decisions that affect development of the grazing program in the EIS study area are shown in Appendix 20. More site-specific resource recommendations, decisions, and trade-offs based on particular resource conditions existing in the respective planning units are contained in the MFP document.

Public input was sought on the planning system through open house sessions held in the EIS study area in early 1979. The revised MFP was finalized in September 1979.

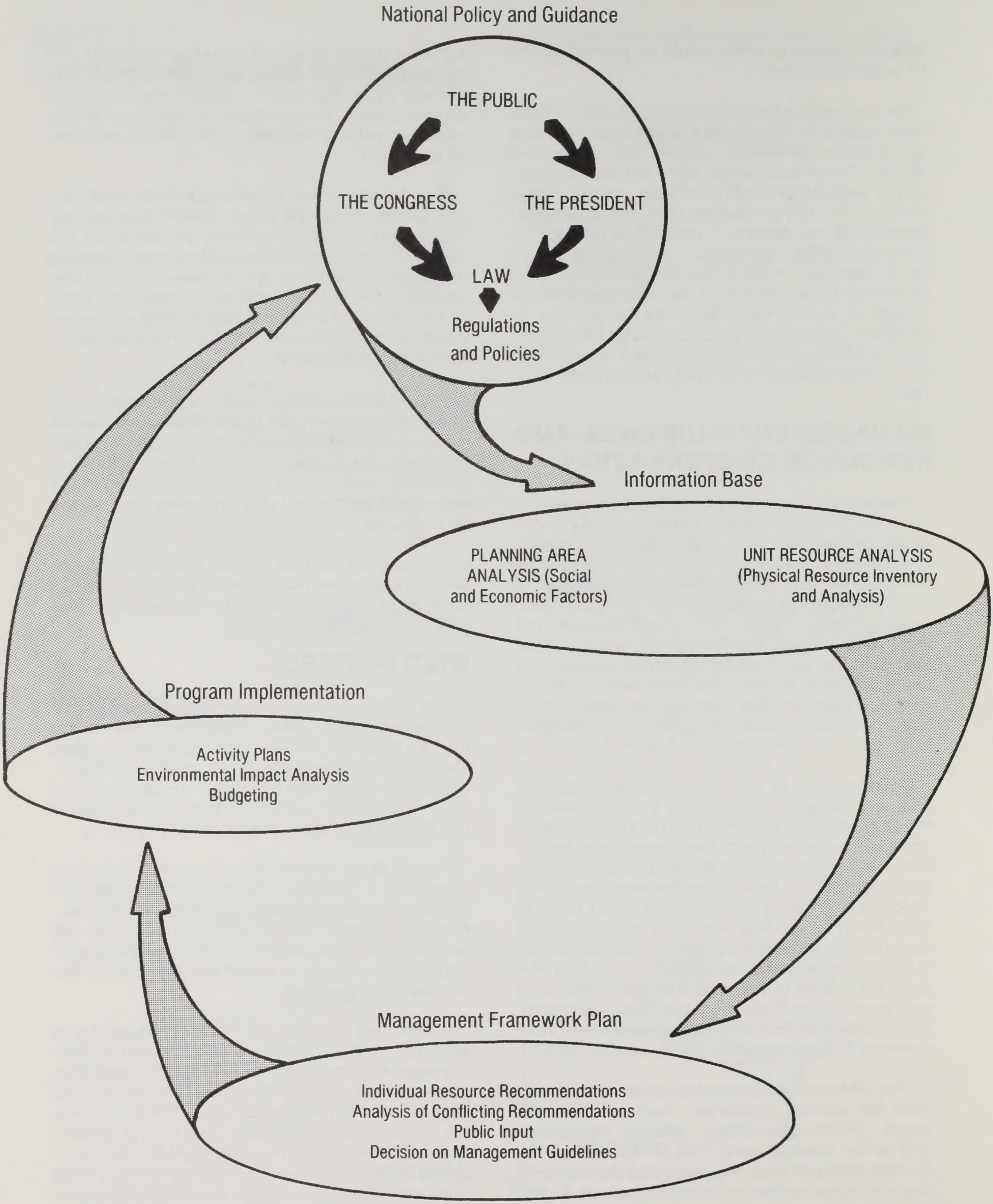
WILD HORSES

The study area is known to have supported wild horses since the 1930s. These wild horses are descendants of horses that escaped or were released on the range by local ranchers and miners. Until passage of the Wild and Free-Roaming Horse and Burro Act of 1971, local residents were constantly adding to and reducing the herds.

The recently completed multiple use planning conducted in the Dillon Resource Area called for the removal of the four horse herds in the area. Extensive public exposure to the multiple use recommendations and the horse gathering plan resulted in virtually unanimous approval of the proposed removal.

A 26-horse herd in the Rocky Hills area was gathered in November 1979 and shipped to Rock Springs, Wyoming, for the Adopt-a-Horse program. Approximately 88 horses remain in three herd areas within the study area. The herd areas are Barton Gulch, Garden Creek, and Sweetwater. Portions of one existing AMP, four proposed AMPs, and five non-AMPs are in the three herd areas. The remaining horses will be gathered in the near future as funds become available;

Figure 1-1: BLM LAND USE PLANNING PROCESS


National Policy and Guidance
THE PUBLIC
THE CONGRESS
THE PRESIDENT
LAW
Regulations and Policies
Information Base
PLANNING AREA ANALYSIS (Social and Economic Factors)
UNIT RESOURCE ANALYSIS (Physical Resource Inventory and Analysis)
Program Implementation
Activity Plans
Environmental Impact Analysis
Budgeting
Management Framework Plan
Individual Resource Recommendations
Analysis of Conflicting Recommendations
Public Input
Decision on Management Guidelines

SOURCE: BLM, 1979.

therefore, additional wild horse impact assessments will not be included in this document.

THREATENED AND ENDANGERED SPECIES

Lemhi penstemon has been identified as occurring on BLM lands in the Badger Pass area and is considered an endangered plant species for this study.It is discussed under "Threatened and Endangered Plants" in chapters 2 and 3. Approximately 5 acres will be fenced to exclude livestock grazing to protect the Lemhi penstemon plants regardless of the alternative or combination of alternatives chosen.

Four threatened or endangered wildlife species have been identifed as occurring or suspected to occur in the study area. They are the bald eagle, the peregrine falcon, the northern Rocky Mountain Wolf, and the grizzly bear. They are discussed under "Threatened and Endangered Terrestrial Wildlife" in chapters 2 and 3.

WILDERNESS CONSIDERATIONS

Under provisions of the Federal Land Policy and Management Act of 1976 (FLPMA), any of the actions proposed may be permissible so long as wilderness values are not impaired. Until such time as Wilderness Study Areas (WSAs), including Instant Study Areas (ISAs), are designated or not designated as wilderness by Congress, all WSAs and ISAs must be managed to maintain wilderness potential.

A proposed action that is found to potentially impair an area either designated as wilderness or under interim management will be modified to accommodate wilderness management concepts according to current management guidelines. If or when designation of an area occurs, determinations will be made as to the intensity of use and developments that will be permitted in each area. Potential impacts have been identified in chapter 3 for the purpose of comparing alternatives.

METHODS USED IN GRAZING MANAGEMENT

Intensive grazing management on public lands allotted to livestock operators is accomplished through allotment management plans (AMPs). Less intensive management is prescribed for small isolated tracts of public land, the non-AMP allotments. Unallotted public lands are lands that are unsuitable or inaccessible for livestock use, or those which have been excluded from grazing because higher values than livestock grazing have been identified.

ALLOTMENT MANAGEMENT PLANS

An allotment management plan (AMP) is a document, prepared in consultation with the lessees or permittees involved, that applies to livestock operations on the public lands. An AMP fills the following needs:

> It prescribes the manner in which, and the extent to which, livestock operations will be conducted in order to meet the multiple use-sustained yield, economic, and other needs and objectives as determined for the lands through land use planning.
>
> It sets the initial level of livestock use on public lands, numbers and kinds of livestock, locations of permitted grazing use, delineation of areas where grazing is prohibited, implementation of grazing systems, and initiation of range studies.
>
> It describes the type, location, ownership, and general specifications for the range developments to be installed and maintained on the lands to meet objectives for livestock grazing and other objectives of land management.
>
> It contains such other provisions relating to livestock grazing and other objectives as may be prescribed by the Secretary of the Interior to be consistent with the provisions of the Federal Land Policy and Management Act of 1976, and other applicable laws.

All allotment management plans have both general and specific objectives. General objectives are broad in scope and originate from decisions of the Management Framework Plan (MFP). General objectives may apply to more than one allotment. Specific objectives quantify desired changes in vegetation composition, erosion condition, or the amount of litter within each allotment that will partially fulfill a general objective. The following examples illustrate the relationship between general and specific objectives.

General objective—minimize soil erosion and improve water infiltration by increasing vegetation ground cover and litter.

> Specific objective—increase the herbaceous vegetation ground cover on identified key areas from 15 percent to 25 percent.

General objective—improve range condition from fair to good through intensive livestock management.

> Specific objective—increase the amount of Idaho fescue on identified key areas from 2 percent to 15 percent, and decrease the amount of big sagebrush from 40 percent to 10 percent.

General objective—improve riparian habitat by increasing the amount of woody vegetation growing on the stream banks; this will reduce erosion and improve habitat for fish, blue grouse, nongame birds, and mule deer.

> Specific objective—increase willow reproduction (plants less than 11 millimeters basal diameter) from the present 1 percent of plants to 12 percent within five years.

Variance among the general and specific objectives of AMPs is possible because of the relationship of a particular grazing allotment to a specific multiple use problem and the allotment's resource potential to resolve this problem. The specific objectives are included in each AMP file and are available for review in the Dillon Resource Area office.

GRAZING SYSTEMS

Grazing systems are prescribed in AMPs to regulate livestock grazing patterns where regulation can alleviate a particular problem and/or achieve a desired result.

Five primary grazing systems, singly or in combination, were considered in the implementation of intensive grazing management programs: rest-rotation grazing, deferred rotation grazing, alternate grazing, deferred grazing, and high intensity/short duration grazing (see table 1-1). These systems are detailed in Appendix 4.

The objectives of the grazing systems are to promote an optimum level of livestock use, while

TABLE 1-1

TYPE OF GRAZING MANAGEMENT FOR EACH ALTERNATIVE

	Type of Grazing System							
	Rest Rotation	Deferred	Deferred Rotation	Alternate Rest	Short Duration/ High Intensity	Seasonal	Unallotted	Total Allotments
Existing Situation	26	1	3	13	0	361	157	561
Alternative								
A: The Proposed Action	111	20	30	24	1	281	51	518
B: Limited Action	36	0	3	9	0	419	51	518
C: Improved Watershed Values and Wildlife Habitat	133	11	14	23	0	245	92	518
D: Accelerated Livestock Forage Production	111	20	30	24	1	281	51	518
E: No Action	26	1	3	13	0	361	157	561
F: Eliminate Livestock Grazing from Public Lands	0	0	0	0	0	0	561	561

SOURCE: BLM, 1979.

at the same time meeting other resource needs that can also be accomplished through intensive livestock management. The purpose of a grazing system is to provide for sustained, long-term utilization of the vegetation resource. Implementation of a grazing system requires completion of range developments such as fences, water sources, and seedings to promote uniform distribution of livestock and proper utilization of the vegetation resource.

The following major points were considered in selecting these grazing systems:

Wildlife—species present, seasons of use, forage and habitat needs, and critical areas.

Watershed—soil erosion, sedimentation, and compaction.

Livestock—seasons of use, number and kind of livestock, food preferences, habits, and husbandry needs.

Vegetation—condition, trend, production, and physiological requirements.

Climate—temperature; amount and occurrence of precipitation.

Topography—steepness of slope and elevation.

Range developments—costs of fencing and water developments, maintenance of existing developments, opening of previously unsuitable areas.

Land—ownership patterns.

Recreation—recreation opportunities, access, and visual resource management needs.

The goals and resource constraints identified in the BLM's land use planning process (Appendix 20) have been incorporated into the proposed grazing systems.

RANGE DEVELOPMENTS

To implement a grazing system, range developments are often necessary. Water developments such as wells, spring developments, water pipelines, and stockwater tanks and troughs would be required to implement the grazing systems outlined for the proposed AMPs. Fences and cattleguards also would be needed, as would vegetation manipulation such as prescribed burning, sagebrush spraying, and plowing and seeding. Only those developments considered absolutely necessary to properly implement the proposed AMPs would be constructed. Other developments could be found necessary after the proposed grazing systems went through one or more cycles.

Water developments are proposed to provide a source of water so that distribution of livestock could be improved on areas where water is now a limiting factor. Fences and cattleguards are proposed to control movement of livestock. Vegetation manipulation practices are proposed to improve the productivity of individual pastures that are in less than satisfactory condition and are not expected to improve in a reasonable amount of time under an intensive management system. In addition, vegetation manipulation would allow pastures that are low in forage production to be balanced with those having an adequate supply and, in some areas, to meet watershed and/or wildlife objectives. The construction and maintenance of various types of range developments are discussed in detail in Appendix 5.

CHEMICAL CONTROL OF SAGEBRUSH

The acreage proposed for chemical treatment would vary by alternative, as shown in table 1-8. The locations of chemical treatments by allotment and the acres involved are shown in Appendix 14 and summarized by alternative in table 1-7, with the year of implementation shown in table 1-8.

The target species for treatment would be primarily big sagebrush. Other broad-leaved species and some forbs such as rabbitbrush, greasewood, thistle, wild buckwheat, sweet clover, dandelion, and wild carrot could be affected if they occurred in the treatment area. Areas to be treated are characterized by a high composition of big sagebrush and a potential for increased production of grasses.

A low volatile ester of 2,4-D in liquid form with a water carrier would be used. It would be applied as an aerial spray by either a fixed-wing aircraft or a helicopter, at the rate of two pounds acid equivalent per acre. The time of application would be early or mid May. Safeguards to be employed include application during the cool part of the day (morning and evening) to maximize effectiveness and minimize drift; application when wind is calm (or less than 8 miles per hour) to minimize wind drift; leaving buffer strips of 0.5 mile or more from live water and agricultural land; compliance with all state and federal laws governing herbicide application, including use of state licensed commercial pesticide applicators; and removal of all livestock from the treatment area during application and for a period of two growing seasons following application.

The herbicide 2,4-D is widely used and has been proven effective for the control of sagebrush. It is not on the Department of the Interior's list of herbicides prohibited for use on rangelands. This herbicide, like 2,4,5-T, is an auxin type herbicide. However, unlike 2,4,5-T, it does not contain the contaminant TCDD and is classified as moderately toxic. In some laboratory tests, however, 2,4-D has been demonstrated to have potential chronic (long-term) effects such as teratogenicity (malformed fetuses), toxicity to bird fetuses, and carcinogenicity. These side effects are not substantiated under field conditions. The herbicide has a half-life of approximately one month, and after six months no significant residues would be expected to exist.

NON-AMP ALLOTMENTS

Non-AMP allotments proposed for less intensive grazing management generally are small, scattered tracts of public land that support a small number of animal unit months (AUMs) in relation to the AUMs on surrounding state and private land. Non-AMP allotments are usually interspersed with large areas of privately owned land. Public access to these areas is limited because they often are "landlocked" by state and private lands; therefore, management of most non-AMP areas generally constitutes minimal supervision by the BLM, primarily to ensure compliance and to evaluate resource conditions. Some non-AMP allotments have been identified for consideration for future AMP development, although more intensive analysis would have to be made before implementation.

UNALLOTTED PUBLIC LANDS

Unallotted public lands are lands not allocated to livestock grazing. Most unallotted lands are unsuitable or inaccessible for livestock use, or land where higher values than livestock grazing have been identified, such as riparian sites or elk calving areas. Management of unallotted lands is primarily limited to use supervision and, in some cases, construction of livestock control facilities.

MONITORING AND EVALUATION

Standardized BLM procedures would be used in the conduct of any forage, watershed, and wildlife habitat studies so that allotment management plans could be evaluated and necessary adjustments made. These studies, in accordance with section 4413.3 of the BLM Manual, would include records of actual use, climate analysis, and range utilization and trend studies. In addition, it is proposed that data be collected on wildlife habitat, riparian vegetation, existing condition of aquatic habitat, utilization and trends, and watershed condition if such information is pertinent to the resource values of the allotment. Locations for studies are identified on a base map overlay in each specific AMP file.

Most AMPs would be evaluated at the conclusion of the grazing cycle, with the exception of grazing systems with only two or three treatments. Studies would be conducted on AMPs with only a few treatments at the end of every other cycle. Likewise, aquatic and riparian studies would be conducted in alternate cycles on all allotments unless the sensitivity of the area required that studies be conducted on a cyclic basis.

Monitoring could indicate, for instance, that important wildlife areas need more rest than is provided for by the grazing system, thereby suggesting a possible grazing formula adjustment or selective fencing of some areas. As another example, grazing management alone may prove to be relatively ineffective in improving vegetation production on some sodbound sites. In this situation, mechanical treatment might then be recommended to accomplish the vegetation production objective outlined in the AMP.

Once initiated, the proposed grazing program would be dynamic. Modifications to AMPs would be made as indicated after interdisciplinary evaluations of the AMP monitoring systems. Modifications would require preparation of an environmental assessment record or a supplement to this environmental impact statement before significant change could be effected. Such modifications (revisions) could include changes in the grazing system, livestock numbers, or season of use. Additional range developments also could be included, or any combination of revisions could be used in order to attain the management objectives.

Permanent range trend plots would be established in key areas to document changes in ground cover, plant vigor, and species composition. A variety of monitoring techniques would be employed, such as the standard 3 foot x 3 foot frame, the Daubenmire canopy cover method, photo stations, and aerial photos using an adaptation of the techniques of Meyer (1976) and Taylor (1975). When decisions that affect future stocking are made, factors considered would be the stocking rates in relation to the estimated carrying capacity, climatic conditions, the trend in range condition, and the results of utilization studies.

AUTHORIZATION AND CONTROL OF LIVESTOCK GRAZING

Each range user is issued term permits through the BLM district office. These permits specify allotment, period of use, and numbers and kinds of livestock. Changes in the period of use or numbers that are desired by the livestock operator, which are outside the limits of the management plan but consistent with management objectives, must be requested in writing and approved in advance of the grazing period. Grazing use outside the limits of the management plan and without prior authorization is considered trespass.

Livestock grazing is supervised throughout the year. If trespass should occur, action would be taken by the BLM to ensure that it was eliminated in accordance with regulations in 43 CFR 4150. Marking of livestock may be required to control livestock movement and ensure proper use. The preferred methods of marking would be ear tagging or paint marking.

The maximum numbers of livestock allowed and the period of use would be specified in all AMPs. Accurate livestock numbers and period of use are essential, as are range study plots, to determine if objectives are being met or what changes may be necessary.

Temporary renewable permits, not to exceed 15 percent of the allowable stocking rate, could be issued in years with better than average forage productivity, while temporary livestock reductions could be made when forage conditions were below average productivity. This would ensure that overstocking would not occur during years of poor production, and it would allow reasonable increases in use for better than average years.

MANAGEMENT FRAMEWORK PLAN VEGETATION ALLOCATIONS

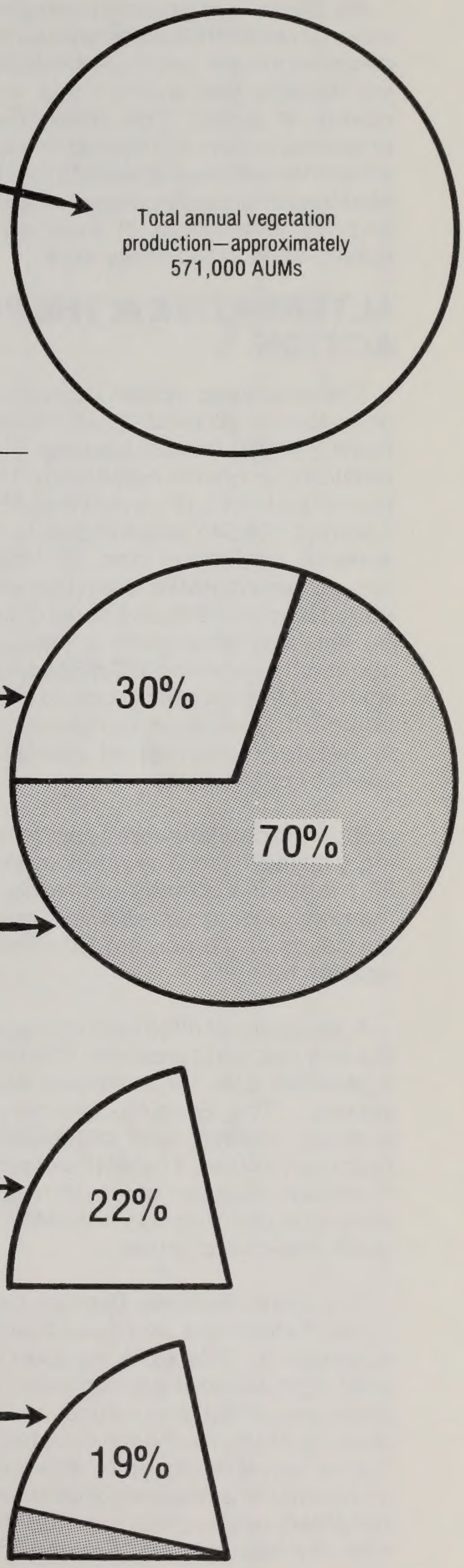
Approximately 1 million acres of public land is under consideration for an improved grazing management program (see the Grazing Allotments map in the map supplement). As a result of resource inventory, about 288,000 acres of public land currently allocated to livestock use within 186 allotments was identified as needing immediate action for the improvement of range condition through intensive management. On the basis of ocular reconnaissance range surveys completed in 1976, 1977, and 1978, reduction of permitted grazing use on the proposed AMPs and non-AMPs was proposed. Use adjustments on existing and revised AMPs were based on trend, condition, actual use and trend studies, and climatic data when available. The overall reduction would be about 12 percent (15,344 AUMs)

Allocations made for livestock grazing through the MFP process amount to 110,033 AUMs, or 19 percent of the total annual vegetation production (571,000 AUMS) available on public rangelands in the study area (figure 1-2). Seventy percent of the total has been allocated for watershed maintenance, wildlife habitat improvement, and other multiple use needs. Of the remaining 30 percent, an additional 8 percent was deducted as being unsuitable or inaccessible for grazing. Of the 22 percent still remaining, 3 percent was allocated to other resource needs through the planning system. See Appendix 2 for methodology used to determine livestock forage allocations.

Figure 1-2: PROPOSED FORAGE ALLOCATION ON PUBLIC LAND

This is a gross estimate of total annual vegetation production expressed in AUMs. It was derived indirectly from ocular reconnaissance range survey data as follows:

$$\text{Total annual vegetation production} = \frac{\text{Total livestock forage production (171,318 AUMs)}}{\text{Average cattle proper use factor (30\%)}}$$



Livestock forage production per ocular reconnaissance range surveys (171,318 AUMs). The average cattle proper use factor for the study area is 30%. This was based on a 15% sample stratified by vegetation type. Observed variability between allotments ranged from 12% to 39%.

Vegetation reserved for plant maintenance, watershed requirements, and some wildlife requirements under the proper use concept (339,700 AUMs).

Available livestock forage. (126,929 AUMs)

Allocation to livestock through the land use plan (110,033 AUMs).

Allocation to other resource needs made through the land use plan (16,896 AUMs).

SOURCE: BLM, 1979

THE PROPOSED GRAZING MANAGEMENT PROGRAM AND ALTERNATIVES

Six alternative grazing management programs are analyzed in this statement so that readers and decisionmakers will have a means of comparing the impacts that would occur in any particular course of action. The alternatives are (A) the proposed action, (B) limited action, (C) improved watershed values and wildlife habitat, (D) accelerated livestock forage development, (E) no action, and (F) elimination of livestock grazing from public lands in the study area.

ALTERNATIVE A: THE PROPOSED ACTION

The proposed action includes (1) continued operation of 26 existing allotment management plans (AMPs) encompassing 213,633 acres of public land intermingled with 153,603 acres of nonfederal land, (2) revision of 22 existing AMPs covering 138,941 acres of public land and 56,950 acres of nonfederal land, (3) implementation of 138 proposed AMPs covering 438,180 acres of public land and 310,354 acres of nonfederal land, (4) less intensive grazing management on 281 allotments involving 122,652 acres of public land where AMPs are not proposed, and (5) continuation of 51 areas in unallotted status (not allotted to livestock grazing) of approximately 41,190 acres of public land.

Riparian habitats were considered by (1) excluding grazing from 25.9 miles of stream, of which 20.1 miles is currently ungrazed, and (2) implementing grazing systems designed to meet riparian needs on 70 percent (315 miles) of the total riparian habitat.

A summary of allotment management plans by grazing system is provided in table 1-2. Appendix 1 provides data for individual AMPs by grazing system. The Grazing Allotments map shows existing, revised, and proposed AMPs for the proposed action. The AMPs are identified by the allotment number given in Appendix 1. Also shown on this map are non-AMP allotments and unallotted public lands.

The initial livestock use has been established for each allotment, and these figures are shown in Appendix 1. This stocking level takes into consideration livestock grazing suitability, range condition, vegetation allocations to wildlife, and maintenance or improvement in watershed condition. Future adjustments up or down would be based on records of actual use, studies of trend in range condition, range utilization studies, and guidance from the Management Framework Plan. Appendix 2 describes the range survey methodology used for rangeland inventories. Changes in season of use are detailed by allotment in Appendix 13.

It is projected that by the year 2010 there would be an increase of 37,052 usable livestock AUMs over the proposed initial livestock rate of 141,897 AUMs (see Appendix 1). On the basis of current allocations to livestock in the study area, about 86 percent, or 31,864 AUMs, would go to livestock, with the remaining 5,188 AUMs available to other resources such as wildlife and watershed protection.

The projected changes in AUMs over the next 25 years (as shown in Appendix1) were calculated after consideration of a number of factors such as range condition and trend, current carrying capacity, potential forage productivity based on soil type, type of grazing system, and professional judgment. No one factor was dominant in the determination of the projections because of the variability between allotments.

Proposed range developments, acreage disturbed, and cost of implementing the several alternatives are summarized in tables 1-7 and 1-8. Range developments for the proposed action would be approximately 193 miles of new fence, 260 miles of fence alteration (primarily alteration of wire heights to meet specifications described in Appendix 5, in areas where fences inhibit big game movement), 23 cattleguards, 40 wells, 61 spring developments, 79 miles of water pipeline, 189 stockwater tanks, and vegetation manipulation practices involving 6,283 acres of prescribed burning, 1,800 acres of sagebrush spraying, and 1,331 acres of plowing and seeding. The cost to implement these range developments is $1,525,000, based on 1978 cost estimates. The number of projects could change slightly before actual construction because of landownership and grazing permit transfers and on-site multiple use evaluations.

ALTERNATIVE B: LIMITED ACTION

This alternative assumes continued operation of 26 existing AMPs and revision of 22 AMPs within the study area. Existing range developments would be maintained, and a minimal number of new range developments would be constructed in connection with the 22 existing AMPs identified for revision. Livestock use would be adjusted to the new stocking rates of 110,033 AUMs, as described in the proposed action. Seasons of use, initial stocking level, and grazing systems are shown by allotment in Appendix 13. A summary

TABLE 1-2

AMP SUMMARY BY GRAZING SYSTEM FOR ALTERNATIVE A: THE PROPOSED ACTION

Grazing System[a]	Number Proposed	Number Existing	Number Revised	Number of Acres Public Land	Number of Acres Other	Total Number of Acres	Present Permitted Use in AUMs[b]	Proposed Initial Stocking Rate in AUMs	Proposed Use by Year 2010 in AUMs
Rest-rotation	75	19	17	562,606	367,798	930,404	77,754	70,506	97,267
Deferred rotation	27	1	2	101,557	54,938	156,495	12,990	10,408	16,472
Deferred grazing	20	0	0	41,102	53,022	94,124	6,995	5,305	7,262
Alternate rest	15	6	3	84,156	37,937	122,093	8,007	7,207	9,461
High intensity/ short duration	1	0	0	1,333	7,212	8,545	205	146	162
Seasonal grazing	281	0	0	122,682	124,356	247,038	19,155	16,461	16,461
Unallotted	51	0	0	41,190	28,350	69,540	271	0	0
Total	470	26	22	954,626	673,613	1,628,239	125,377	110,033	147,085[c]

SOURCE: BLM, 1979.

a. Several kinds of grazing systems have been formulated on AMP allotments. Each of the combination grazing system allotments was counted in the grazing system that had the largest number of pastures.

b. For the 26 existing and 22 revised AMPs, the average actual livestock use instead of permitted use was used.

c. Based on the proposed allocation level, 141,897 AUMs would be allocated to livestock.

of AMPs by grazing system for this alternative is shown in table 1-3.

This alternative also assumes no change in the status of the non-AMP and unallotted areas and no implementation of proposed AMPs. Range use supervision, soil/vegetation monitoring, and project development would continue at the present level.

Range developments that would be implemented on the 22 revised AMPs would be approximately 16.5 miles of new fence, 260 miles of fence alteration, 2 cattleguards, 3 wells, 13 miles of water pipeline, 21 stockwater tanks, and 660 acres of prescribed burning. The overall cost to implement these range developments would be about $202,000. Range developments are listed in Appendix 14.

ALTERNATIVE C: IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT

This alternative proposes a selective level of livestock use of 74,785 AUMs, which is 50,592 AUMs less than the existing stocking level (Appendix 13). It also assumes implementation of range developments and grazing systems that would improve watershed and recreation values and wildlife habitat, and it assumes that no forage produced in the future in excess of the current situation would be allocated to livestock. Appendix 13 displays which allotments would be subject to adjustments in season of use and initial stocking levels. A summary of AMPs by grazing system for this alternative is shown in table 1-4.

Lower stocking levels for allotments included in this alternative were based on the following criteria (Appendix 12): (a) elimination of livestock grazing on selected allotments from April 1 through June 15, (b) allocation of vegetation on most areas of critical or severe erosion condition to watershed, (c) implementation of grazing systems that incorporate an additional rest period, (d) pasture capacity stocking, (e) allocation of vegetation on the basis of the amount and type of fish and wildlife habitat present in each allotment, and (f) exclusion of grazing to resolve use conflicts or improve recreation opportunities at specific recreation areas.
Allocations in Appendix 12 were based on current surveyed capacities, not current authorized use.

The following criteria were used to derive watershed and wildlife allocations in specific key areas through reductions in livestock grazing use, implementation of new systems, or total livestock exclusion. A total of 50,592 additional AUMs was allocated from the current stocking level as follows:

Elk—social intolerance; forage needs, especially in fall and winter; and calving areas (14,359 AUMs)

Deer—high potential summer and fall range (3,032 AUMs)

Waterfowl and nongame birds—nesting habitat (2,741 AUMs)

Riparian habitats—areas of special concern; habitat condition (6,993 AUMs)

Threatened or endangered species—grizzly bear range; peregrine falcon nesting habitat (1,983 AUMs)

Bighorn sheep—existing and potential habitat (551 AUMs)

Pronghorn antelope and sage grouse—habitats (299 AUMs)

Pasture capacity stocking—watershed benefits (9,843 AUMs)

Critical watershed erosion—(10,791 AUMs)

This breakdown shows that 29,958 AUMs were allocated to wildlife and 20,634 to watershed. Wherever the need for livestock reduction was identified for the benefit of both watershed and wildlife in the same geographic area, only the larger reduction figure was used in calculating stocking rates in order to avoid double counting. In many cases, deductions made for one wildlife species also would benefit other species or riparian habitat (see Appendix 12).

Riparian habitat (see the Water Resources map in the map supplement) was given special consideration through (1) protective fencing and exclusion of grazing on 39.2 miles of stream as opposed to 20.1 miles ungrazed at present, (2) stocking reductions totaling 4,879 AUMs, and (3) changes in 34 grazing systems that were outlined in the proposed action, in order to improve riparian habitats from unsatisfactory to satisfactory condition (see table 3-30 and Appendix 12).

Range developments proposed under this alternative would be approximately 300 miles of new fence, 17 miles of fence removal, 260 miles of fence alteration, 30 cattleguards, 40 wells, 61

TABLE 1-3

AMP SUMMARY BY GRAZING SYSTEM FOR ALTERNATIVE B: LIMITED ACTION

Grazing System[a]	Number Proposed	Number Existing	Number Revised	Number of Acres Public Land	Number of Acres Other	Total Number of Acres	Present Permitted Use in AUMs[b]	Proposed Initial Stocking Rate in AUMs	Proposed Use by Year 2010 in AUMs
Rest-rotation	0	19	17	301,641	197,478	499,119	39,440	39,816	49,264
Deferred rotation	0	1	2	5,595	2,510	8,105	800	779	882
Deferred grazing	0	0	0	0	0	0	0	0	0
Alternate rest	0	6	3	45,338	10,565	55,903	4,047	3,855	4,483
High intensity/ short duration	0	0	0	0	0	0	0	0	0
Seasonal grazing	419	0	0	560,862	434,710	995,572	80,819	65,683	65,683
Unallotted	51	0	0	41,190	28,350	69,540	271	0	0
Total	470	26	22	954,626	673,613	1,628,239	125,377	110,033	120,312[c]

SOURCE: BLM, 1979.

a. Several kinds of grazing systems have been formulated on AMP allotments. Each of the combination grazing system allotments was counted in the grazing system that had the largest number of pastures.

b. For the 26 existing and 22 revised AMPs, the average actual livestock use instead of permitted use was used.

c. Based on the proposed allocation level, 118,787 AUMs would be allocated to livestock.

TABLE 1-4

AMP SUMMARY BY GRAZING SYSTEM FOR ALTERNATIVE C: IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT

Grazing System[a]	Number Proposed	Number Existing	Number Revised	Number of Acres Public Land	Number of Acres Other	Total Number of Acres	Present[b] Permitted Use in AUMs	Proposed Initial Stocking Rate in AUMs	Proposed Use by Year 2010 in AUMs
Rest-rotation	94	18	20	570,960	366,668	937,628	79,613	50,429	50,429
Deferred rotation	14	0	0	39,633	23,720	63,353	6,366	3,891	3,891
Deferred grazing	12	0	0	21,621	16,436	38,057	3,744	2,131	2,131
Alternate rest	19	6	2	100,212	82,062	182,274	11,665	5,667	5,667
High intensity/ short duration	1	0	0	1,333	7,212	8,545	205	146	146
Seasonal grazing	234	0	0	106,505	109,040	215,545	16,382	12,521	12,521
Unallotted	98	0	0	114,362	68,475	182,837	7,402	0	0
Total	472	24	22	954,626	673,613	1,628,239	125,377	74,785	74,785

SOURCE: BLM, 1979.

a. Several kinds of grazing systems have been formulated on AMP allotments. Each of the combination grazing system allotments was counted in the grazing system that had the largest number of pastures.

b. For the 24 existing and 22 revised AMPs, the average actual livestock use instead of permitted use was used.

spring developments, 79 miles of water pipeline, 189 stockwater tanks, and vegetation manipulation practices including 1,022 acres of prescribed burning, 2,900 acres of sagebrush spraying, and 2,150 acres of plowing and seeding or interseeding. (See table 1-7 for summary figures. Range developments are detailed by allotment in Appendix 14.) The total cost to implement these range developments would be about $1,805,303. The developments are necessary to implement viable grazing systems while also benefiting wildlife habitat and watershed conditions. Vegetation manipulation would be deferred on important deer winter habitats until a thorough evaluation could be made of grazing management as a means of meeting range and watershed objectives.

ALTERNATIVE D: ACCELERATED LIVESTOCK FORAGE DEVELOPMENT

This alternative would provide for accelerated livestock forage development by the use of extensive vegetation manipulation practices (sagebrush spraying, prescribed burning, and reseeding; see table 1-8). The primary objectives would be to remove or suppress undesirable plant species, to increase livestock forage production, and to accelerate range condition improvement. This alternative proposes to initially allow 37,397 livestock AUMs more than the 125,377 AUMs of current permitted use, or a stocking level of 162,774 AUMs (see Appendix 13). All forage produced in the future in excess of the current situation would be allocated exclusively to livestock after proper use factors had been considered. A summary of AMPs by grazing system for this alternative is shown in table 1-5.

Range developments for this alternative would be the same as those for Alternative A, the proposed grazing management program (see table 1-7), except for the number of acres prescribed for vegetation manipulation. Under Alternative D there would be 30,725 acres of prescribed burning, 36,160 acres of sagebrush spraying, and 14,483 acres of plowing and seeding or interseeding. It is assumed that while public land is unavailable for grazing during rest or deferment following land treatment, the necessary grazing would be furnished by nonfederal lands. The temporary loss of AUMs would be a short-term impact, with the lost AUMs restored approximately two years after land treatment. The total cost to implement all range developments would be about $2,657,555.

ALTERNATIVE E: NO ACTION

A "no action" alternative is required by the Council on Environmental Quality (CEQ). This no action alternative is defined in the BLM Manual, section 1792.44E8, as the "decision to forgo the project and do nothing different." It is included in this statement for comparison purposes, and it assumes continuation of the present grazing management program frozen at the point in time that the proposal is being written. The current permitted use is 125,377 AUMs. The current season of use and stocking levels for each allotment are listed in Appendix 13. A summary of AMPs by grazing system for this alternative is shown in table 1-6.

Changes anticipated for the future are not included, and needed adjustments in livestock use levels as identified during the recent inventory would not be included. Revision of existing AMPs would not occur, nor would the gradual implementation of proposed AMPs. This alternative is described and analyzed on the basis of the current permitted use.

ALTERNATIVE F: ELIMINATION OF LIVESTOCK GRAZING FROM PUBLIC LANDS

This alternative assumes elimination of permitted livestock grazing from approximately 950,000 acres of public lands, for a total livestock use reduction of 125,377 AUMs. No new AMPs would be implemented, all existing AMPs would be terminated, and no range developments (with the possible exception of fencing) would be maintained or constructed unless necessary for other resource programs such as wildlife or watershed.

Either a large number of employees would be required to continually monitor all tracts of public lands (to document actual numbers and periods of time that livestock were on public lands in order to successfully pursue trespass cases) or an extensive amount of fencing by the BLM would be necessary to prevent livestock trespass. The exact amount of fencing needed has not been identified for the entire study area, although the magnitude of a public land fencing effort can be envisioned by review of the Surface Ownership map.

TABLE 1-5

AMP SUMMARY BY GRAZING SYSTEM FOR ALTERNATIVE D: ACCELERATED LIVESTOCK FORAGE DEVELOPMENT

Grazing System[a]	Number Proposed	Number Existing	Number Revised	Number of Acres Public Land	Number of Acres Other	Total Number of Acres	Present Permitted Use in AUMs[b]	Proposed Initial Stocking Rate in AUMs	Proposed Use by Year 2010 in AUMs
Rest-rotation	75	19	17	562,606	367,798	930,404	77,754	106,171	106,171
Deferred rotation	27	1	2	101,557	54,938	156,495	12,990	18,310	18,310
Deferred grazing	20	0	0	41,102	53,022	94,124	6,995	8,552	8,552
Alternate rest	15	6	3	84,156	37,937	122,093	8,007	13,118	13,118
High intensity/ short duration	1	0	0	1,333	7,212	8,545	205	162	162
Seasonal grazing	281	0	0	122,682	124,356	247,038	19,155	16,461	16,461
Unallotted	51	26	0	41,190	28,350	69,540	271	0	0
Total			22	954,626	673,613	1,628,239	125,377	162,774	162,774

SOURCE: BLM, 1979.

a. Several kinds of grazing systems have been formulated on AMP allotments. Each of the combination grazing system allotments was counted in the grazing system that had the largest number of pastures.

b. For the 26 existing and 22 revised AMPs, the average actual livestock use instead of permitted use was used.

TABLE 1-6

AMP SUMMARY BY GRAZING SYSTEM FOR ALTERNATIVE E: NO ACTION

Grazing System[a]	Number Existing	Number of Acres Public Land	Number of Acres Other	Total Number of Acres	Present Permitted Use in AUMs
Rest-rotation	26	215,270	168,233	383,503	29,955
Deferred rotation	3	16,726	10,198	26,924	2,585
Deferred grazing	1	3,735	520	4,255	395
Alternate rest	13	109,101	31,163	140,264	9,828
High intensity/ short duration	0	0	0	0	0
Seasonal grazing	361	561,019	455,879	1,016,898	82,614
Unallotted	157	48,775	7,620	56,395	0
Total	561	954,626	673,613	1,628,239	125,377

SOURCE: BLM, 1979.

a. Several kinds of grazing systems have been formulated on AMP allotments. Each of the combination grazing system allotments was counted in the grazing system that had the largest number of pastures.

Seven townships were identified as typical with regard to fencing needs:

Township	Length in Miles
T11S, R7W	38.25
T10S, R13W	23.25
T6S, R3W	42.25
T2S, R8W	38.00
T10S, R1E	13.50
T8S, R1E	6.75
T6S, R5W	26.50

On the basis of this sample, it appears, on a worst-case basis, that about 27 miles of new fence would be required per township to totally fence public lands (see table 1-7). With about 100 townships in the study area, approximately 2,700 miles of new fence would be needed, at an average 1978 cost of $2,200 per mile. An estimated 260 miles of existing fence would need to be altered to meet deer and antelope specifications, at an estimated cost of $160 per mile. On the basis of these estimates, the total cost of developments for this alternative would be $7,101,272.

BENEFIT/COST ANALYSIS

An analysis of benefits versus cost (B/C ratio) in dollars has been computed for all proposed or revised AMPs that would require a dollar expenditure for implementation under the proposed action. There were 27 AMPs that had B/C ratios of less than 1:1 (costs in excess of benefits), and 98 AMPs that had B/C ratios greater than 1:1. The benefit versus cost analysis for each AMP is available for review at the Dillon Resource Area office of the Bureau of Land Management.

IMPLEMENTATION OF THE PROPOSED ACTION AND ALTERNATIVES

The preparation and analysis of the alternatives was based on the following assumptions:

> The BLM would receive funding to make range developments within specified time periods.
>
> Personnel would be available to carry out the related studies, monitoring, and evaluation required to manage and administer the proposed grazing programs.
>
> The BLM would receive funding to maintain existing and new improvements and to make revisions as a result of continuing studies and monitoring programs.

Implementation of the proposed action or any alternative involving revised or proposed AMPs would take place over a four-year period following completion of the EIS. Continuation of the operational AMPs, grazing management on non-AMP areas, and unalloted status designations would be fully implemented after the EIS was completed. All necessary livestock use adjustments would be made in accordance with BLM grazing regulations over a period of one to three years from the issuance of a decision to the affected operator.

Approximately 25 years would be needed to meet the resource objectives of each AMP after the establishment of a grazing system. The implementation program outlined in table 1-8 assumes that adequate funds and personnel would be made available in the specified time period. Table 1-8, a summary of Appendix 14, shows proposed range developments and the four-year implementation schedule by AMP.

For alternatives involving AMPs and range developments, some new positions would need to be allocated in fiscal year 1980, as shown--range technicians and operations technicians would be needed. In addition, if 138 AMPs were implemented, a total of 186 AMPs would require close supervision and 281 non-AMPs would need periodic inspection.

An estimated five-tenths of a work-month would be required to properly supervise each AMP, and an additional two-tenths of a work-month would be needed for non-AMP allotments at the present time, with only seven full-time range conservationists. An additional six positions would be necessary for adequate management of the range program in the study area.

On-the-job training and general employee orientation for these new employees would be necessary before a major commitment could be made in fiscal year 1981 to new AMP supervision, range studies, project layout and design, and contract preparation and supervision. Similarly, operations technicians would be needed for project layout and design and for contract development. Range conservationists would be needed before project layout to reevaluate the proposed AMPs in light of this environmental analysis and

TABLE 1-7

PROPOSED RANGE DEVELOPMENTS BY ALTERNATIVE

	Number of Developments										
Alternative[a]	New Fence (miles)	Fence Removal (miles)	Fence Alteration[b] (miles)	Cattle-guards	Wells	Springs	Pipelines	Stock Tanks	Prescribed Burning (acres)	Sagebrush Spraying (acres)	Plowing and Seeding (acres)
A	192.60	0	260	23	40	61	78.97	189	6,283	1,800	1,331
B	16.55	0	260	2	3	3	13.25	21	660	0	0
C	299.70	16.5	260	30	40	61	78.97	189	1,022	2,900	2,150
D	192.60	0	260	23	40	61	81.97	189	30,725	36,160	14,483
E	0	0	0	0	0	0	0	0	0	0	0
F	2,700.00	0	260	0	0	0	0	0	0	0	0

a. Alternative A is the proposed grazing management program; Alternative B is a limited action alternative that would provide a level of grazing management somewhere between the present program and the proposed program; Alternative C would improve watershed values and wildlife habitat; Alternative D involves accelerated livestock forage development; Alternative E is the "no action" alternative--continuation of the present grazing management program; and Alternative F would eliminate livestock grazing from public lands.

b. Fence alteration is adjusting the wire spacing on existing fences to meet deer and antelope specifications according to the BLM Manual, section 1737.

Cost of Proposed Range Developments

	Cost Per Unit[c]											
Alternative	New Fence $2,200	Fence Removal $400	Fence Alteration $160	Cattle-guards $1,700	Wells $8,000	Springs $1,800	Pipelines $1,200	Stock Tanks $450	Prescribed Burning $2.50	Sagebrush Spraying $14	Plowing and Seeding $35	Total
A	423,720	0	41,600	39,100	320,000	109,800	94,764	85,050	15,708	25,200	46,585	1,201,526
B	36,410	0	41,600	3,400	24,000	5,400	15,900	9,450	1,650	0	0	137,810
C	659,340	6,600	41,600	51,000	320,000	109,800	94,764	85,050	2,555	40,600	75,250	1,486,559
D	423,720	0	41,600	39,100	320,000	109,800	98,364	85,050	76,812	506,240	506,905	2,207,591
E	0	0	0	0	0	0	0	0	0	0	0	0
F	5,940,000	0	41,600	0	0	0	0	0	0	0	0	5,981,600

c. Unit costs are based on 1978 figures. Cost figures would be revised before AMP implementation to reflect the current construction cost index. Because the proposed AMPs were developed over a two-year period, the 1978 cost estimates were used in all alternatives to provide a common base.

Acres Disturbed by Range Developments

	Average Acreage Disturbed per Unit											
Alternative	New Fence 1.0	Fence Removal 0[d]	Fence Alteration 0[d]	Cattle-guards 0.02	Wells 0.02	Springs 0.2	Pipelines 0.12	Stock Tanks 0.1	Prescribed Burning 1.0	Sagebrush Spraying 1.0	Plowing and Seeding 1.0	Total[e]
A	192.60	0	0	0.46	0.08	12.2	9.47	18.9	6,283	1,800	1,331	9,648
B	16.55	0	0	0.04	0.06	0.6	1.59	2.1	660	0	0	1,511
C	299.70	0	0	0.60	0.80	12.2	9.47	18.9	1,022	2,900	2,150	6,210
D	192.60	0	0	0.46	0.80	12.2	9.80	18.9	30,725	36,160	14,483	68,974
E	0	0	0	0	0	0	0	0	0	0	0	0
F	2,700.00	0	0	0	0	0	0	0	0	0	0	2,700

d. It has been assumed that fence removal or fence alteration disturbs no acreage.

e. Burning, spraying, or plowing may be done for seedbed preparation on seeding projects. For example, if the development is to spray sagebrush and then seed the same area, the acres are counted only once in computing the total acres disturbed. Therefore, the figure for total acres disturbed is not a summation of all acres disturbed by developments.

SOURCE: BLM, 1979.

TABLE 1-8

SUMMARY OF RANGE DEVELOPMENTS BY ALTERNATIVE
BASED ON THE PROPOSED FOUR-YEAR IMPLEMENTATION SCHEDULE

Year/ Alternative	Number of Allotments[a]				Fence (miles)	Fence Removal (miles)	Fence Alteration[b] (miles)	Pipeline (miles)	Springs (no.)	Wells (no.)	Stock Tanks (no.)	Cattleguards (no.)	Prescribed Burning (acres)	Sagebrush Spray (acres)	Plowing and Seeding (acres)
	E	R	P	N											
1980															
A					0	0	0	0	0	0	0	0	0	0	0
B					0	0	0	0	0	0	0	0	0	0	0
C					0	0	0	0	0	0	0	0	0	0	0
D					0	0	0	0	0	0	0	0	0	0	0
E					0	0	0	0	0	0	0	0	0	0	0
F					0	0	0	0	0	0	0	0	0	0	0
1981															
A					0	0	157.88	0	0	0	0	0	0	0	0
B		1			0	0	157.88	0	0	0	0	0	0	0	0
C	6	2	8	40	89.80	13.25	157.88	0	0	0	0	6	0	800	1,340
D	1	2	8		0	0	157.88	0	0	0	0	0	3,686	11,559	9,199
E					0	0	0	0	0	0	0	0	0	0	0
F					675.00	0	157.88	0	0	0	0	0	0	0	0
1982															
A		1	21		59.90	0	52.75	10.03	4	6	20	3	226	0	831
B		1			5.00	0	52.75	0	0	0	0	0	0	0	0
C		1	21		66.20	1.25	52.75	10.03	4	6	20	4	110	0	0
D		1	21		59.90	0	52.75	13.03	4	6	20	3	1,199	4,862	831
E					0	0	0	0	0	0	0	0	0	0	0
F					675.00	0	52.75	0	0	0	0	0	0	0	0
1983															
A		8	29		65.95	0	29.93	30.95	26	21	75	10	1,530	0	400
B		8			11.55	0	29.93	1.25	0	1	3	1	0	0	0
C		8	29		65.95	0	29.93	30.95	26	21	75	10	400	900	710
D		8	29		65.95	0	29.93	30.95	26	21	75	10	11,387	5,940	4,353
E					0	0	0	0	0	0	0	0	0	0	0
F					675.00	0	29.93	0	0	0	0	0	0	0	0
1984															
A		3	46		66.75	0	19.44	37.99	31	13	94	10	4,527	1,800	100
B		3			0	0	19.44	12.00	3	2	18	1	660	0	0
C		3	46		77.75	2	19.44	37.99	31	13	94	10	512	1,200	100
D		3	46		66.75	0	19.44	37.99	31	13	94	10	14,453	13,799	100
E					0	0	0	0	0	0	0	0	0	0	0
F					675.00	0	19.44	0	0	0	0	0	0	0	0

EIS Area Total by Alternative

Alternative	Total Allotments	Fence (miles)	Fence Removal (miles)	Fence Alteration (miles)	Pipeline (miles)	Springs (no.)	Wells (no.)	Stock Tanks (no.)	Cattleguards (no.)	Prescribed Burning (acres)	Sagebrush Spray (acres)	Plowing and Seeding (acres)
A	109	192.60	0	260	78.97	61	40	189	23	6,283	1,800	1,331
B	13	16.55	0	260	13.25	3	3	21	2	660	0	0
C	164	299.70	16.5	260	78.97	61	40	189	30	1,022	2,900	2,150
D	119	192.60	0	260	81.97	61	40	189	23	30,725	36,160	14,483
E	0	0	0	0	0	0	0	0	0	0	0	0
F	0	2,700.00	0	260	0	0	0	0	0	0	0	0

SOURCE: BLM, 1979

a. E = existing AMPs; R = revised AMPs; P = proposed AMPs; N = non-AMPs.

b. Fence alteration is adjusting existing fences to meet deer and antelope specifications according to the BLM Manual, section 1737. The estimated cost per mile of fence alteration is $160.00.

Development Costs[c]	Acres Disturbed[d]	Survey and Design (work-months)	Construction (work-months)	Additional Positions[e]		Work-month Costs[c]	Total Costs[c]
				Permanent	Temporary		
$ 0	0	4.40	0	0	0	$ 7,920	$ 7,920.00
0	0	4.40	0	0	0	7,920	7,920.00
0	0	15.85	0	0	2	28,530	28,530.00
0	0	20.44	0	0	2	36,792	36,792.00
0	0	0	0	0	0	0	0.00
0	0	68.54	0	2	8	123,372	123,372.00
25,260.80	0	14.04	4.42	0	2	33,228	58,488.80
25,260.80	0	1.96	4.42	0	1	11,484	36,744.80
296,420.80	2,229.92	13.25	11.36	1	2	44,298	340,718.80
518.266.80	24,444.00	16.62	27.71	2	3	79,794	598,060.80
0	0	0	0	0	0	0	0.00
1,510,260.80	675.00	65.60	92.17	8	14	283,986	1,794,246.80
251,206.00	290.09	26.26	17.73	2	3	79,182	330,388.00
19,440.00	5.00	3.84	2.13	0	2	10,746	30,186.00
237,891.00	176.28	30.13	10.14	2	2	72,486	310,377.00
325,306.50	5,835.36	35.00	20.81	2	5	100,458	425,764.50
0	0	0	0	0	0	0	0.00
1,493,440.00	675.00	64.96	89.23	8	13	277,542	1,770,982.00
470,393.80	2,845.49	33.93	34.82	3	6	123,750	594,143.80
42,748.80	843.22	5.10	3.20	0	2	14,940	57,688.80
491,018.80	1,892.97	30.97	31.97	3	6	113,292	604,310.80
716,551.30	16,750.00	37.93	43.56	4	6	146,682	863,233.30
0	0	0	0	0	0	0	0.00
1,489,788.80	675.00	64.66	88.59	8	13	275,850	1,765,638.80
454,665.90	6,512.93	0	43.91	3	1	79,038	533,703.90
50,360.40	662.44	0	10.68	0	1	19,224	69,584.40
461,228.40	1,910.41	0	35.41	2	1	60,138	521,366.40
647,466.90	21,945.00	0	47.91	4	0	86,238	733,704.90
0	0	0	0	0	0	0	0.00
1,488,110.40	675.00	0	88.29	8	0	158,922	1,647,032.40

Development Costs	Acres Disturbed	Survey and Design (work months)	Construction (work months)	Additional Positions		Work-month Costs	Total Costs
				Permanent	Temporary		
$1,201,526.50	9,648.51	78.63	100.88	3	6	$ 323,118	$1,524,644.50
137,810.00	1,510.66	15.30	20.43	0	2	64,314	202,123.70
1,486,559.00	6,209.58	90.20	86.88	3	6	318,744	1,805,303.00
2,207,591.50	68,974.36	109.99	139.99	4	6	450,000	2,657,555.50
0	0	0	0	0	0	0	0
5,981,600.00	2,700.00	263.76	358.28	8	14	1,119,672	7,101,272.00

c. Cost figures are based on 1978 estimates. The operations cost per work-month is $1,800.00.

d. Burning, spraying, or plowing may be done for seedbed preparation on seeding projects. For example, if the improvement is to spray sagebrush and then seed the same area, the acres are counted only once in computing the total acres disturbed. Therefore, the figure for total acres disturbed is not a summation of all acres disturbed by improvement.

e. The present operations capability in the EIS study area is one full-time engineering technician. Additional positions shown are above current capabilities.

to complete any supplemental environmental analysis that might be required.

The following factors were considered in the establishment of priorities for implementation of AMPs: (a) which AMPs were scheduled for revision on the basis of recommendations from ongoing study and monitoring programs, (b) which AMPs could be implemented with minimal cost (generally these would be proposed AMPs with objectives of maintenance or minor improvement), (c) the location of allotments in the same geographic area, (d) which allotments had critical resource problems that could be remedied with intensive management, (e) benefit/cost analyses, and (f) which allotments might be affected by their relationship to Forest Service lands.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVES

A summary comparison of the impacts on major resource factors is presented in table 1-9. Through the analysis process, it was found that there would be no significant impacts and no significant differences in impacts between alternatives for climate and air quality, geology and topography, forested areas, wild horses, landownership, mineral resources, or cultural resources. These componnets are therefore not included in the summary table showing environmental consequences by alternative (table 1-9).

Resource factors have been quantified when practical. Where change is discussed, the reference point for determining change is the existing situation. "Implementation phase" refers to the years 1981 through 1984, when the selected grazing management alternative, or combination of alternatives, would be initiated. Table 1-9 displays comparative changes so the reader and decision-maker can determine the relative impact of each alternative compared to the existing situation. The short-term impacts are those that would occur during the implementation phase, primarily from project developments. Long-term impacts are those that would occur by the year 2010. The following discussion summarizes the significant impacts by alternative as shown in table 1-9.

ALTERNATIVE A: THE PROPOSED ACTION

Erosion condition would improve significantly. Sediment yields would be reduced by 14 percent, to 2.1 million tons per year overall. Short-term disturbance of 9,617 acres for range developments would effect a relatively insignificant soil loss of 148,860 tons.

Acreage of excellent and good range condition would increase substantially, by 14 percent. Correspondingly, poor and fair range condition would decrease by 31 percent.

Elk winter-spring habitats would improve moderately, but summer-fall habitats would remain 40 to 50 percent unsatisfactory, a major residual adverse impact. The condition of mule deer winter-spring habitats, antelope summer-fall habitats, waterfowl nesting, and sage grouse habitats would all improve substantially (table 1-9). Riparian habitat in satisfactory condition would improve from 53 percent (239 miles) to 70 percent (315 miles). Largely satisfactory habitats would continue for mule deer summer-fall use, antelope winter-spring use, and yearlong use by moose and bighorn sheep. The peregrine falcon, the bald eagle, and the grizzly bear would remain unaffected regardless of the management alternative selected. A determination of the effects of grazing on the northern Rocky Mountain wolf will be reserved until further inventory can be completed. In the meantime, the BLM will take no management actions that will affect the wolf.

On 251 allotments, decreases totaling 22,625 AUMs would make it necessary for operators to seek alternative sources of livestock forage or supplemental feed. Increases in allocation would total 7,281 AUMs on 114 allotments. The initial stocking level of this alternative (110,033 AUMs) would be 12 percent below current permitted use, while the AUMs projected to be harvested by livestock after 25 years would be 13 percent above current use.

The implementation cost for range developments would be substantial, a total of $1,524,644.

Economically, 137 ranch operations would be negatively affected in the short term, while the well-being of 46 operations would improve. In the long term, 103 ranch operations would continue to be adversely affected, while the well-being of 101 ranch operations would improve.

The short-term effects on social well-being would be positive for 46 ranch operations and negative for 240 ranch operations. There would be positive long-term effects on the social well-being of 175 operations and negative effects on 179 operations.

The short-term overall net reduction in annual income would be approximately $283,400, a 2 percent reduction from the current income for all ranch operations. By the year 2010, overall income is projected to increase by $52,980.

ALTERNATIVE B: LIMITED ACTION

No significant improvement in erosion condition would be expected. Sediment yields would be 14 percent less than the overall current level. Disturbance of 1,508 acres for range developments would cause relatively insignificant soil losses totaling 25,939 tons.

Of the various courses of action being analyzed, the limited action alternative is second only to the no action alternative in terms of worsening range condition. Poor and fair range condition would increase by 6 percent, and good to excellent condition range would decrease by 16 percent.

TABLE 1-9

SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

Environmental Component	Existing[a] Situation	Alternative A: The Proposed Action		Alternative B: Limited Action		Alternative C: Improved Watershed/ Wildlife Values		Alternative D: Accelerated Livestock Forage Development		Alternative E: No Action		Alternative F: Eliminate Livestock Grazing	
		Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
Soils			(AMPs)		(AMPs)		(AMPs)		(AMPs)		(AMPs)		(AMPs)
Compaction AMPs	Unknown	Little or no change	+[b] 40 - 17 0 129	Little or no change	+ 19 - 31 0 136	Little or no change	+ 73 - 0 0 113	Little or no change	+ 32 - 27 0 127	Little or no change	+ 4 - 48 0 134	Little or no change	+ 79 - 0 0 107
Non-AMPs and unallotted areas	Unknown	Little or no change	+ 7 - 21 0 304	Little or no change	+ 7 - 21 0 304	Little or no change	+ 18 - 15 0 299	Little or no change	+ 7 - 21 0 304	Little or no change	+ 0 - 26 0 306	Little or no change	+ 43 - 0 0 289
Infiltration rates AMPs	Unknown	Little or no change	+ 132 - 17 0 37	Little or no change	+ 68 - 49 0 69	Little or no change	+ 174 - 0 0 12	Little or no change	+ 101 - 37 0 48	Little or no change	+ 20 - 74 0 92	Little or no change	+ 186 - 0 0 0
Non-AMPs and unallotted areas	Unknown	Little or no change	+ 34 - 69 0 22	Little or no change	+ 34 - 69 0 22	Little or no change	+ 49 - 63 0 220	Little or no change	+ 35 - 69 0 228	Little or no change	+ 18 - 78 0 236	Little or no change	+ 332 - 0 0 0
Organic Matter Accumulation AMPs	Unknown	Little or no change	+ 141 - 13 0 32	Little or no change	+ 79 - 36 0 71	Little or no change	+ 177 - 0 0 9	Little or no change	+ 130 - 16 0 40	Little or no change	+ 28 - 50 0 108	Little or no change	+ 186 - 0 0 0
Non-AMPs and unallotted areas	Unknown	Little or no change	+ 34 - 126 0 172	Little or no change	+ 34 - 126 0 172	Little or no change	+ 52 - 114 0 166	Little or no change	+ 36 - 126 0 170	Little or no change	+ 19 - 145 0 168	Little or no change	+ 332 - 0 0 0
Permeability AMPs	Unknown	Little or no change	+ 132 - 17 0 37	Little or no change	+ 70 - 47 0 69	Little or no change	+ 174 - 0 0 12	Little or no change	+ 104 - 31 0 51	Little or no change	+ 21 - 68 0 97	Little or no change	+ 186 - 0
Non-AMPs and unallotted areas	Unknown	Little or no change	+ 33 - 70 0 229	Little or no change	+ 33 - 70 0 229	Little or no change	+ 48 - 64 0 220	Little or no change	+ 36 - 69 0 227	Little or no change	+ 17 - 80 0 235	Little or no change	+ 332 - 0 0 0

Erosion condition class (total acreage)													
Stable	37,556A	Little or no change	42,735A	Little or no change	41,008A	Little or no change	46,186A	Little or no change	39,281A	Little or no change	37,368A	Little or no change	45,753A
Slight	172,616A		230,975A		214,549A		277,447A		207,198A		171,940A		345,956A
Moderate	453,842A		394,080A		410,975A		346,673A		418,794A		432,014A		284,890A
Critical	125,849A		122,337A		123,507A		119,997A		124,677A		147,913A		114,144A
Severe	8,799A		8,535A		8,626A		8,359A		8,712A		9,427A		7,919A
Land disturbance (acreage)	N/A	9,617A	N/A	1,508A	N/A	6,383A	N/A	83,082A	N/A	N/A	N/A	2,700A	N/A
Erosion losses (tons)	N/A	148,860T	N/A	25,939T	N/A	83,100T	N/A	1,096,348T	N/A	N/A	N/A	46,440T	N/A

a. Specific data for each component are not available; however, projections are based on professional judgment of the proposed management for each allotment by alternative. Studies have been proposed to accumulate the data for trends of selected components.

b. + = improvement; - = deterioration; 0 = static.

Water Resources													
Aquifer recharge depletion (general terms)	Groundwater is not extensively used	None	Minimal	None	Minimal	None	Minimal	None	Minimal	None	None	None	None
Peak discharges (general terms)	Higher than should be because of riparian zone deterioration and lack of ground cover	None	Decrease	None	Minimal	None	Decrease	None	Minimal decrease	None	Increase	None	Decrease
Average annual runoff (general terms)	--	None	Minimal decrease	None	Minimal	None	Decrease	None	Minimal decrease	None	Minimal increase	None	Decrease

TABLE 1-9, page 3

Environmental Component	Existing Situation	Alternative A: The Proposed Action		Alternative B: Limited Action		Alternative C: Improved Watershed/ Wildlife Values		Alternative D: Accelerated Livestock Forage Development		Alternative E: No Action		Alternative F: Eliminate Livestock Grazing	
		Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
Chemical quality (general terms)	Good quality water, but some problem areas causing degradation	None	Improve	None	None	None	Improve	None	Improve	None	Degrade	None	Improve
Sediment yield (tons per year)	2,449,000 T/yr	Not identified	2,115,700 T/yr	Not identified	2,229,700 T/yr	Not identified	1,548,300 T/yr	Not identified	2,243,300 T/yr	Not identified	2,583,700 T/yr	Not identified	803,500 T/yr
Vegetation--Range Condition[a] (acreage)													
Excellent	90,646	--[b]	105,255	--	89,419	--	104,307	--	105,030	--	88,329	--	94,796
Good	369,877		429,047		356,143		432,473		446,976		351,810		388,695
Fair	222,639		152,242		231,037		150,583		134,279		235,784		201,062
Poor	15,087		11,705		21,650		10,886		11,964		22,326		13,696
Not identified	92,505		92,505		92,505		92,505		92,505		92,505		92,505

a. Existing, revised, and proposed AMP allotments only. No long-term projects have been made for the non-AMP allotments.

b. For all alternatives, there would be no major change from the existing situation in the short term.

Terrestrial Wildlife Habitat													
(percentage of habitat in satisfactory condition)													
Mule deer													
Summer-fall	67%		80-90%		60-70%		85-95%		30-40%		60-70%		90-99%
Winter-spring	21%		75-85%		15-25%		75-85%		20-30%		15-25%		80-90%
Elk													
Summer-fall	56%		50-60%		50-60%		70-80%		50-60%		50-60%		90-99%
Winter-spring	47%		60-70%		50-60%		85-95%		25-35%		45-55%		90-99%
Antelope													
Summer-fall	29%		75-85%		25-35%		85-95%		65-75%		25-35%		90-99%
Winter-spring	74%		80-90%		70-80%		90-95%		50-60%		70-80%		90-99%
Bighorn													
Yearlong	98%		95-99%		95-99%		95-99%		45-55%		95-99%		95-99%
Moose													
Yearlong	90%		90-95%		90-95%		95-99%		90-95%		90-95%		95-99%
Grizzly													
Yearlong	7%		13%		7%		41%		13%		7%		41%
Riparian habitat	53%		70%		56%		92%		51%		55%		99%
Waterfowl													
Spring (nesting)	41%		65-75%		35-45%		90-100%		35-45%		35-45%		90-100%
Sage grouse													
Spring-summer (breeding)	28%		65-75%		25-35%		80-90%		8-18%		25-35%		95-99%
Summer-fall-winter (non-breeding)	37%		65-75%		32-42%		80-90%		23-33%		32-42%		95-99%

TABLE 1-9, page 5

Environmental Component	Existing Situation	Alternative A: The Proposed Action		Alternative B: Limited Action		Alternative C: Improved Watershed/ Wildlife Values		Alternative D: Accelerated Livestock Forage Development		Alternative E: No Action		Alternative F: Eliminate Livestock Grazing	
		Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
Aquatic Wildlife													
Water Quality	See water resources section.												
Fisheries Condition	Decreasing	Improving	Improving	Static	Static	Improving	Improving	Static	Static	Decreasing	Decreasing	Improving	Improving
Fisheries	Static	Improving	Improving	Static	Static	Improving	Improving	Decreasing	Decreasing	Decreasing	Decreasing	Improving	Improving
Streambank Condition	Decreasing	Static	Improving	Static	Static	Improving	Improving	Decreasing	Static	Decreasing	Decreasing	Improving	Improving
Sedimentation	See water resouces section.												
Wilderness													
Naturalness	Overgrazing/grazing in areas unsuitable for grazing	Slight decrease	Slight increase	No change	Slight decrease	Moderate increase	Significant increase	Moderate decrease	Significant decrease	No change	No change	Significant increase	Significant increase
Primitive recreation and opportunities for solitude	Reduced opportunities due to grazing in certain areas	Slight decrease	Unknown	No change	Slight decrease	Moderate increase	Significant increase	Moderate decrease	Significant decrease	No change	No change	Significant increase	Significant increase
Recreation													
Quality of hunting opportunities	Average to below average	No change	Moderate beneficial impact	No change	Moderate adverse impact	No change	Significant beneficial impact	Moderate adverse impact	Significant adverse impact	No change	Significant adverse impact	No change	Significant beneficial impact

Quality of fishing opportunities	Average/ fair	No change	Moderate beneficial impact	No change	Slight beneficial impact	No change	Significant beneficial impact	No change	Significant adverse impact	No change	Significant adverse impact	No change	Significant beneficial impact
Use Conflicts													
Recreation Access	Moderate	Moderate	Moderate to significant	Moderate	Moderate	Moderate	Significant	Moderate	Moderate to significant	Moderate	Moderate	Moderate	Intense
Recreation vs. livestock	Moderate	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight
Cultural Resources Potential number of sites impacted by range improvements	N/A	19	Minimal	3	Minimal	28	Minimal	140	Minimal	0	Minimal	5	Minimal
Scenic Values	Slight adverse impact	Slight adverse impact	Significant adverse impact	No change	Slight adverse impact	Slight adverse impact	Significant adverse impact	No change	Slight adverse impact	No change	Slight adverse impact	Slight beneficial impact	Significant beneficial impact
Livestock Grazing													
AUMs harvested annually by livestock	125,377	110,033	141,897	110,033	118,787	74,785	74,785	162,774	162,774	125,377	125,377	0	0
Licensed AUM changes (and allotments)							a		a		a		a
Increase		7,281 (114)	33,246 (207)	7,281 (114)	14,739 (134)	3,738 (97)		52,001 (216)		0		0	
Decrease		22,625 (251)	16,726 (234)	22,625 (251)	21,329 (247)	54,330 (325)		14,627 (226)		0		125,377 (518)	
No change		0 (153)	0 (77)	0 (153)	0 (137)	0 (96)		0 (76)		125,377 (561)		0	
Total allotments	125,377 (561)	110,033 (518)	141,897 (518)	110,033 (518)	(118,787) (518)	74,785 (518)		162,774 (518)		125,377 (561)		125,377 (518)	
Net change		-15,344	+16,520	-15,344	-6,590	-50,592		+37,397		0		-125,377	

a. Long-term effects would be the same as short-term effects.

TABLE 1-9, page 7

Environmental Component	Existing Situation	Alternative A: The Proposed Action		Alternative B: Limited Action		Alternative C: Improved Watershed/ Wildlife Values		Alternative D: Accelerated Livestock Forage Development		Alternative E: No Action		Alternative F: Eliminate Livestock Grazing	
		Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
Social and Economic Conditions													
Social Well-being:													
Number of ranch operations affected	370												
Negatively		240	179	240	214	326	326	172	172	0	0	370	370
Positively		46	175	46	108	23	23	183	183	0	0	0	0
No change		84	16	84	48	21	21	15	15	370	370	0	0
Economic Impacts on Ranches:													
Individual Ranch Income:													
Number of ranch operations affected	216												
Negatively		137	103	137	124	190	190	100	100	0	0	216	216
Positively		46	101	46	59	13	13	107	107	0	0	0	0
No change		33	12	33	33	13	13	9	9	216	216	0	0
Total Ranch Income	$14,704,220	$ -283,400	$ +52,980	$ -283,400	$-201,520	$ -801,380	$-801,380	$+233,850	$+233,850	0	0	$-1,862,680	$1,862,680
Permit Values	10,536,480	-1,423,890	+1,342,260	-1,423,890	-782,730	-4,506,750	-4,506,750	+3,103,740	+3,103,740	0	0	-10,536,480	-20,536,480
Personal Property Taxes	490,000	-4,500	+ 500	-4,500	-3,500	-12,700	- 12,700	+2,200	+2,200	0	0	- 29,500	- 29,500

Employment:[a]													
Number affected	480	-5	0	-5	-5	-14	-14	+6	+6	0	0	-33	-33
Regional Economic Impacts:[b]													
Regional Income	$485,638,000	$+213,000	$+345,000	$+30,000	$-331,000	$+655,000	$-1,181,000	$+768,000	$+596,000	$+16,000	No change	$+1,161,000	$-2,939,000
Regional Employment	28,000	Little or no change	Little or no change	Little or no change	Little or no change	Little or no change	Little or no change	Little or no change	Little or no change	Little or no change	Little or no change	+55	-46

a. Fulltime or equivalent hired ranch employees.

b. Figures shown are per year. The long-term figure shown for all alternatives is the income or employment change by the year 2010.

SOURCE: BLM, 1979.

All wildlife habitats would remain essentially unchanged, with slight improvement in elk winter habitat.

Livestock use adjustments are the same as those described for Alternative A. The AUMs projected to be harvested by livestock after 25 years would be 5 percent less than the current permitted use.

The total implementation costs would be minimal in comparison to other alternatives--about $202,124.

Short-term impacts on social well-being and economy would be the same as those described for the proposed action. In the long term, 108 ranch operations would have improved social well-being, while 214 ranch operations would be adversely affected.

By the year 2010, 124 ranch operations would have reduced income from their current levels and 59 operations would realize increases, for a net change of approximately $201,520. This would be a 1 percent reduction from the current level.

ALTERNATIVE C: IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT

Land disturbance for range developments (18,650 acres) is second to the accelerated livestock forage development alternative in extent. Soil losses would amount to 83,110 tons, which is relatively insignificant in the context of the overall improved livestock use distribution. Sediment yields would total 1,548,300 tons per year in the study area, down 38 percent from the existing situation. Other than Alternative F, which would eliminate livestock grazing from public lands, this alternative would effect the greatest improvement in erosion condition.

Lands in good or excellent condition would increase by 17 percent; this increase is second only to the accelerated livestock forage development alternative. Acreage in poor and fair condition would decrease by 32 percent.

This alternative is exceeded only by the elimination of grazing alternative in improvement of wildlife habitats. Major improvements would occur in mule deer winter-spring habitats, elk habitats, antelope summer-fall habitats, waterfowl nesting areas, and all sage grouse habitats. Riparian habitats would improve from 53 percent (239 miles) in satisfactory condition to 92 percent (414 miles).

The quality of hunting and fishing opportunities would be significantly improved; however, some recreation access would suffer from fence construction.

On 325 allotments, a total decrease of 54,330 AUMs, to 74,785 AUMs, would make it necessary for operators to seek alternative livestock forage. There would be a total increase of 3,738 AUMs on 97 allotments. The initial stocking level would be 40 percent less than current permitted use, with no increases allocated to livestock use in the long term.

The total implementation cost would be significant, $1,805,303.

In both the short and long terms, the social well-being of approximately 326 ranch families would be adversely affected.

The average reduction in income of 45 small commercial ranch operations would be about 20 percent of current annual income. Probably 15 to 20 of these operations would be forced out of business, or off-ranch employment would have to be sought. The overall net reduction for the 203 ranches affected by this alternative would be $801,380, or a 5 percent reduction in the total

ALTERNATIVE D: ACCELERATED LIVESTOCK FORAGE DEVELOPMENT

The greatest amount of land disturbance, 83,082 acres, would result from range developments associated with this alternative. Short-term soil losses from these activities would total 1,096,348 tons. However, the overall annual sediment yield would be reduced by 13 percent, to 2,243,300 tons. No significant erosion condition changes would occur.

Of all the alternatives, this action would bring about the greatest improvement in range condition. Lands in excellent and good condition would improve by 20 percent, while lands in poor and fair condition would decrease by 38 percent.

Major declines in condition would occur on mule deer summer-fall habitats, elk and antelope winter-spring habitats, bighorn yearlong habitats, and all seasonal sage grouse habitats. Deer, elk, riparian, and waterfowl habitats would remain in largely unsatisfactory condition.

Significant adverse impacts to the quality of hunting and fishing opportunities would occur. Recreation access would be significantly reduced; at the same time, significant decreases in naturalness, primitive recreation, and opportunities for solitude would occur.

On 226 allotments, livestock use reductions would amount to 14,627 AUMs. Increases totaling 52,001 AUMs would involve 216 allotments. The initital stocking level and the AUMs projected to be harvested by livestock after 25 years would be the same (162,774 AUMs), or 30 percent above the current permitted use.

Other than for the fencing costs estimated on a worst-case basis in the alternative to eliminate livestock grazing, this alternative would have the most significant total implementation costs, $2,657,555.

Adverse economic impacts would occur to 172 families, while the well-being of 183 ranch families would improve in both the short and the longterms.

The annual income of 107 ranch operations would be increased by $399,660 over the current level. One hundred ranch operations would sustain decreases in income of $165,810 annually in both the short term and the long term.

ALTERNATIVE E: NO ACTION

With continuation of present levels of livestock use, a slight decline in erosion condition would occur. Increases in critical and severe erosion condition, from 134,648 to 157,340 acres, would be worse than for any of the other alternatives. No land disturbance for range developments is projected. Sediment yield would be the highest of all alternatives, 2,583,700 tons per year, which is essentially a continuation of the present losses. Peak discharges and annual runoff would increase.

A significant decline in range condition would occur. Land in excellent and good condition would decrease by 4 percent; land in poor and fair condition would increase by 9 percent.

All wildlife habitats would remain essentially unchanged; largely unsatisfactory habitats would continue for mule deer and elk winter-spring use, antelope summer-fall use, waterfowl nesting, and all sage grouse use periods. Elk summer-fall habitats would remain 40 to 50 percent unsatisfactory.

The same number of BLM AUMs would be authorized in the future as at present; therefore, at least "on paper," there would appear to be no local or regional economic impacts. However, the actual amount of forage available for livestock would probably decrease, causing ranch operators to reduce livestock numbers; thus, there probably would be some reductions in real ranch income.

The social and economic well-being of the estimated 370 ranch operations would not be expected to change.

ALTERNATIVE F: ELIMINATION OF LIVESTOCK GRAZING FROM PUBLIC LANDS

This alternative would result in the greatest improvement in erosion condition. Beyond the 25-year projection period, however, plant stagnation could arrest improvement at a lower level than might be expected from plant growth stimulation by light grazing. Fence construction, in a worst-case situation, could disturb 2,700 acres. Sediment yields would be significantly decreased, as would peak discharges and annual runoff.

Range condition would improve significantly, with poor and fair condition range decreasing by 10 percent and good to excellent condition range increasing by 5 percent. All wildlife habitats would improve to satisfactory condition.

There would be significant increases to naturalness, primitive recreation, and quality of opportunities for hunting, fishing, and solitude. Intense conflicts pertaining to recreation access would occur.

There would be a total decrease of 125,377 AUMs on 518 allotments initially, as well as in the long term.

Should total public land fencing occur, the total implementation cost would be extreme, amounting to $7,101,272.

Elimination of livestock grazing would reduce the income of all the 370 ranch families that lease BLM grazing. The overall reduction in income to the 216 ranches would be $1,862,680 annually, a 13 percent reduction from the present total income level. Twenty-nine ranches are from 21 percent to 60 percent dependent on BLM grazing. Eighteen of these would probably be forced out of business.

THE AFFECTED ENVIRONMENT

CHAPTER

2

THE PHYSICAL ENVIRONMENT

CLIMATE AND AIR QUALITY

Climate within the EIS area can be described as a typical semi-arid intermountain climate, which varies considerably with elevation and aspect. Elevation ranges from 5,200 to more than 11,000 feet.

Peak precipitation occurs in May and June; a second, lesser peak follows in September. November through February is the driest part of.the year. The heaviest precipitation occurs on the western, or windward, slope of the mountains. Precipitation in the valley basins of Upper Missouri tributaries ranges from 12 to 20 inches per year; however, precipitation in the mountain areas is much greater (50 or more inches). Skies are often cloudy, and frequent periods of showers or general rain occur in spring months.

Summer and early fall are characterized by long periods of clear, sunny weather. General rains are uncommon during this period. The growing season is short, generally varying between 90 and 120 days. Temperatures range from minus 50 degrees Fahrenheit in the winter to 100 degrees in the summer. Freezing temperatures may occur as late as mid-June and as early as the first week of September. The movement of cold Arctic air masses into the Upper Missouri tributaries basin in winter may result in below zero temperatures for several days at a time.

Air quality in the study area is currently regarded as good (pristine). Severe dry weather may produce dusty periods when particulate matter becomes visible as haze. Air stagnation and poor ventilation in the atmosphere cause the air to appear worse in autumn. Sources of air contaminants include smelters, chemical plants, lumber mills, cement plants, gravel crushing operations, mining in varying degrees, and forest slash burning. Dust is blown about in and near the area from fallow fields, roads, and other places where bare soil is exposed. Pollen and spores from vegetation are seasonal additions to suspended particulate matter. Other air contaminants are herbicides, pesticides, and vehicle emissions.

At the present time there is no serious air quality problem in this area.

GEOLOGY AND TOPOGRAPHY

The EIS study area consists of a few broad upland valleys surrounded by mountain ranges. The elevation varies from a low of about 5,000 feet near Whitehall, on the north, to a high of 11,316 feet on the east side of the area, in the Madison Range.

The Continental Divide forms the southern and western borders of the Dillon Resource Area. From the northwest corner of the area, it meanders generally west to east across the northern portion of the resource area.

The study area contains five major river valleys: the Beaverhead, Centennial, Big Hole, Madison, and Ruby. Among the 16 mountain ranges that lie wholly or partly in the resource area are the Pioneers, the Pintlars, the Tobacco Root, Ruby, and Highland mountains, and the Bitterroot, Greenhorn, Fleecer, Blacktail, Sweetwater, and Madison ranges.

The present physiography of the area is directly related to the complex bedrock geology that formed during the mountain-building period about 60 million years ago. Most of the area lies within the now-famous Rocky Mountain disturbed belt, or the Overthrust Belt, which has been traced from Mexico north to Canada. This zone, where older sedimentary rocks have been thrust over younger ones, has high potential for renewed oil and gas exploration and development.

The three major rock types, igneous, metamorphic, and sedimentary, are all well represented in the area. The rock ages range from early pre-Cambrian (more than 600 million years old) to very recent (less than 10,000 years old).

SOILS

Soil Associations

Soils in the EIS study area are diversified, ranging from sand dunes to dense clays. They are developing from deposits of basalt, limestone, sandstone, conglomerate, mudstone, argillites, quartzites, and granite. Consequently, the range of chemical and physical characteristics is diversified, and both extremes of a particular property may be found within an association. The major soils have been grouped into 22 general soil associations, which are described in table 2-1 and delineated on the Soils map in the map supplement. Detailed descriptions of all soil mapping units are on file in the BLM Dillon Resource Area office. Appendix 9 gives an example of a detailed soil description.

TABLE 2-1: PHYSICAL PROPERTIES OF SOILS

Soil Association	Acres	Percentage of Total EIS Area	Slope	Soil Depth	Effective Rooting Depth (inches)	Surface Texture	Available Water Capacity	Permeability	Drainage	Compaction Hazard	Surface Runoff	Erosion Susceptibility	Range Sites	Hydrologic Group	Potential Productivity[a]
1	362,197	8.5	Nearly level-very steep	Moderately deep	8-17	Gravelly loam-loam	Low	Moderate-rapid	Well drained-excessively drained	Moderate	Slow-rapid	Moderate-severe	Stony, silty	B	500-550
2	299,861	7.1	Nearly level-very steep	Shallow-moderately deep	8-24	Loam-very cobbly loam	Low	Moderate-rapid	Well drained-excessively drained	Low-moderate	Medium-v.rapid	Moderate-severe	Shallow, stony	B	550-850
3	615,253	14.5	Nearly level-very steep	Deep-moderately deep	15-23	Loam-gravelly loam	Low-high	Slow-moderately rapid	Well drained	Low-severe	Slow-v.rapid	Moderate-severe	Silty on untimbered areas	B	600-850
4	290,602	6.9	Nearly level-very steep	Moderately deep	8-21	Loam-gravelly loam	Low	Moderately slow-moderately rapid	Well drained-excessively drained	Low-moderate	Slow-rapid	Low-moderate	Stony, silty	B	500-650
5	66,389	1.6	Nearly level-moderately steep	Deep	11-17	Loam-gravelly loam	Low-moderate	Very slow-moderate	Well drained	Moderate-severe	Medium-v.rapid	Moderate-severe	Dense clay, stony, silty	D	400-600
6	91,093	2.1	Nearly level-very steep	Moderately deep-deep	8-16	Very cobbly loam-loam	Low	Moderate-rapid	Well drained-excessively drained	Low-moderate	Slow-v.rapid	Moderate	Stony, sandy, silty	B	350-550
7	169,301	4.0	Nearly level-very steep	V. shallow-deep	8-23	Very cobbly loam-clay loam	Low	Slow-moderately rapid	Well drained	Moderate-severe	Medium-v.rapid	Moderate-v.severe	Clayey, silty, thin hilly	C	500-800
8	54,571	1.3	Nearly level-steep	Deep	27-31	Loam	Moderate-high	Moderate-moderately rapid	Well drained	Moderate	Slow-rapid	Low-moderate	Silty	B	1,300-1,800
9	79,872	1.9	Nearly level-steep	Deep	13-40	Loam-silt loam	Low-high	Slow-moderate	Well drained-somewhat poorly drained	Severe	Slow-rapid	Moderate-severe	Silty, dense clay	C	900-1,100
10	31,701	0.7	Nearly level-very steep	Moderately deep-shallow	8-29	Very gravelly loam-loam	Low-Moderate	Slow-moderately rapid	Well drained	Moderate-severe	Medium-v.rapid	Moderate-severe	Thin hilly, where not timbered	B	100-200

11	77,184	1.8	Nearly level-very steep	Moderately-deep-shallow	8-23	V.gravelly loam-loam	Low-high	Moderate-moderately rapid	Well drained	Moderate	Medium-v.rapid	Moderate-severe	Thin hilly, where not timbered	B	100-200
12	5,760	0.1	Nearly level-steep	Deep	10-19	Sandy loam	Low	Rapid	Somewhat excessively drained	Low	V.slow-rapid	Moderate-severe	Sands, sandy	A	450-650
13	171,264	4.1	Sloping-very steep	Moderately deep-shallow	15-23	Gravelly loam-loam	Low-high	Moderate-moderately rapid	Well drained	Low	Slow-v.rapid	Moderate-severe	Silty where not timbered	B	500-750
14	11,349	0.3	Sloping-very steep	Moderately deep-shallow	8-13	Loam-very cobbly loam	Low	Moderate-moderately rapid	Excessively drained-well drained	Low-Moderate	Medium-v.rapid	Moderate-severe	Shallow where not timbered	B	100-200
15	14,363	0.3	Sloping-very steep	Moderately deep-shallow	8-17	Loam-very cobbly loam	Low	Moderate-moderately rapid	Excessively drained-well drained	Low Moderate	Slow-v.rapid	Moderate-severe	Thin hilly where not timbered	B	75-150
16	285,995	6.7	Nearly level-moderately steep	Deep	8-24	Loam-gravelly loam	Low-high	Moderate-moderately rapid	Well drained-somewhat poorly drained	Low-moderate	Slow-rapid	Slight-severe	Wetland, silty where not timbered	B	2,000-2,300
17	235,211	5.5	Nearly level-gently sloping	Deep	20-32	Loam-silty clayloam	High	Moderately slow	Well drained-poorly drained	Moderate-severe	Slow-medium	Moderate	Silty, subirrigated	B	1,800-3,000
18	158,635	3.8	Nearly level-strongly sloping	Shallow-deep	17-25	Sandy loam-silt loam	Low	Moderately rapid	Well drained	Low	Slow-rapid	Moderate-severe	Limy	B	850-1,500
19	197,291	4.7	Nearly level-moderately steep	Shallow-deep	15-20	Clayloam	Moderately-high	Moderate	Well drained	Moderate-severe	Slow-medium	Moderate-severe	Silty	B	900-1,800
20	471,253	11.1	Moderately sloping-steep	Shallow-deep	19-40	Loam-gravelly loam	Low-moderate	Moderate moderately rapid	Well drained	V. low-moderate	Medium	Moderate	Shallow, silty	B	1,600-2,600
21	105,643	2.5	Strongly sloping-very steep	Deep	24-30	Gravelly loam-channery loam	Low-very low	Moderate	Well drained	Low	Slow-rapid	Moderate-severe	Silty where not timbered	B	360-720

TABLE 2-1, page 3

Soil Association	Acres	Percentage of Total EIS Area	Slope	Soil Depth	Effective Rooting Depth (inches)	Surface Texture	Available Water Capacity	Permeability	Drainage	Compaction Hazard	Surface Runoff	Erosion Susceptibility	Range Sites	Hydrologic Group	Potential Productivity[a]
22	110,720	2.6	Strongly sloping-very steep	Deep	60	Gravelly loam-channery loam	Moderate	Moderate moderately rapid	Well drained-moderately well drained	Low-moderate	Medium	Moderate	Timbered	B	N/A
Unsurveyed	332,715	7.9													

SOURCES: U.S., Department of Agriculture, Soil Conservation Service, "Madison County Draft Soil Survey," 1979. Draft soil survey legend (typewritten) on file at Soil Conservation Service office, Ennis, MT. University of Montana, Montana Forest and Conservation Experiment Station, Soil Survey, prepared for the U.S. Department of the Interior, Bureau of Land Management, as part of the Dillon Resource Area Resources Inventory (Missoula, MT: University of Montana, 1978).

a. These potentials are for an average production year in pounds per acre. Timbered land forage was not added into the potential productivity figures, but the percentage of timber in the association was considered.

Physical Properties

Physical properties of a soil can largely determine soil capabilities and limitations. Physical characteristics, singly or collectively, can influence other characteristics. For example, size and arrangement of soil particles (soil texture and structure) influence permeability, available water capacity, surface runoff, compaction hazard, erosion susceptibility, and productivity. A range of physical properties by soil association is displayed in table 2-1. Acreages of each association are shown, as is the percentage of the study area each association encompasses.

Erosion

The susceptibility of a soil to erosion should be a determinant of multiple use management. Most of the soil associations identified in table 2-1 have moderate to severe erosion susceptibility. However, where adequate management precautions to protect watershed integrity have been lacking, accelerated erosion has resulted.

A total of 134,648 acres (15 percent) of public land is in either critical or severe erosion condition (see table 2-2). This erosion condition is an expression of current erosion based on field observations. The Soil Surface Factor Method was used for determination. Critical and severe erosion condition classes are a primary factor in the evaluation of watershed condition. The Soils map displays the degree of erosion severity by allotment.

Most of the study area, however, is suffering from moderate erosion, which is not acceptable. Considerable topsoil (unquantifiable at this time) is being lost by accelerated erosion on areas within this erosion class.

Downward trends in vegetation within the moderate erosion condition class could suggest unacceptable levels of erosion. Approximately 27 percent of the study area is in an apparent downward trend (see Appendix 3), yet only 15 percent of the study area is suffering from either critical or severe erosion (see table 2-2). It would be reasonable to assume, then, that part of the 254,015 acres in a downward vegetative trend has an unacceptable level of erosion within the moderate erosion condition class. The Horse Prairie area of the study area is an example of this. Some specific allotments with an unacceptable level of erosion are Rape Creek, Reservoir Creek, Exchange Pasture, Red Mine, and Chinatown.

Water is the primary erosion agent in the area; however, there are specific locations with considerable wind erosion. Short duration, high intensity convective thunderstorms common to the area are the most damaging in terms of erosion, and spring runoff is the next most severe influence. Because of lowered vegetation density, a substantial portion of the study area (15 percent) can no longer adequately handle this water. This has resulted in extensive accelerated sheet erosion, gullying, and rilling throughout the area.

Active geologic erosion is present in the area, although it is not extensive. There are allotments, however (such as Horse Prairie Livestock, Rape Creek, and Crooked Creek), where the topsoil has eroded off, exposing a less fertile subsoil that does not revegetate well; consequently, the subsoil is now eroding. These soils could conceivably be considered to be undergoing geologic erosion.

Compaction

Compaction is the packing together of soil particles by some force at the surface, which results in an increase in soil density and a decrease in pore space. The problem arises when pore space is decreased to a point where soil, water, air, and plant roots have restricted movement, thereby causing stunted plant growth. According to Lull, "its major effect is to drastically reduce the pore space through which water moves into and through the soil, thereby reducing infiltration and percolation, increasing surface runoff, and encouraging erosion" (U.S., Department of Agriculture, Forest Service [USDA, FS] 1959).

Wet clays are easily compacted; however, contrary to widespread belief, they are not a necessary component of soils that are subject to compaction. Swanston (USDA, FS 1965) states that "most studies have indicated that medium textured soils (loams and silt loams) compact to greater densities than do fine or coarse textured soils. Soil moisture contents giving the greatest degree of compaction are neither very wet nor very dry." A review of the literature indicates that optimum moisture for compaction is about midway between field capacity and the permanent wilting point.

Trampling causes the greatest amount of compaction under moist soil conditions, which occur during spring. This damage is intensified through vegetation removal by livestock. Water infiltration is reduced in compacted soil, so less water is available for plant growth. Permeability is also

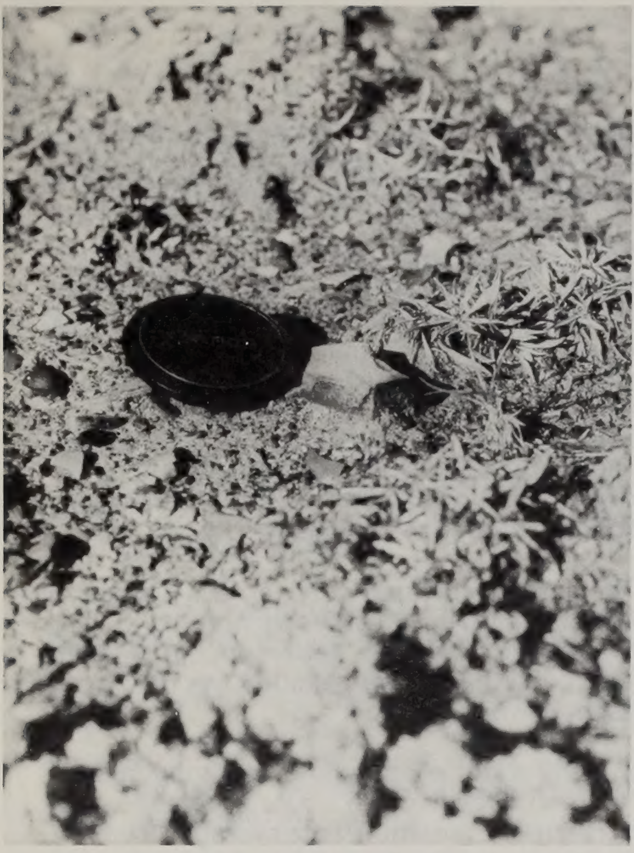
TABLE 2-2

EROSION CONDITION CLASSES

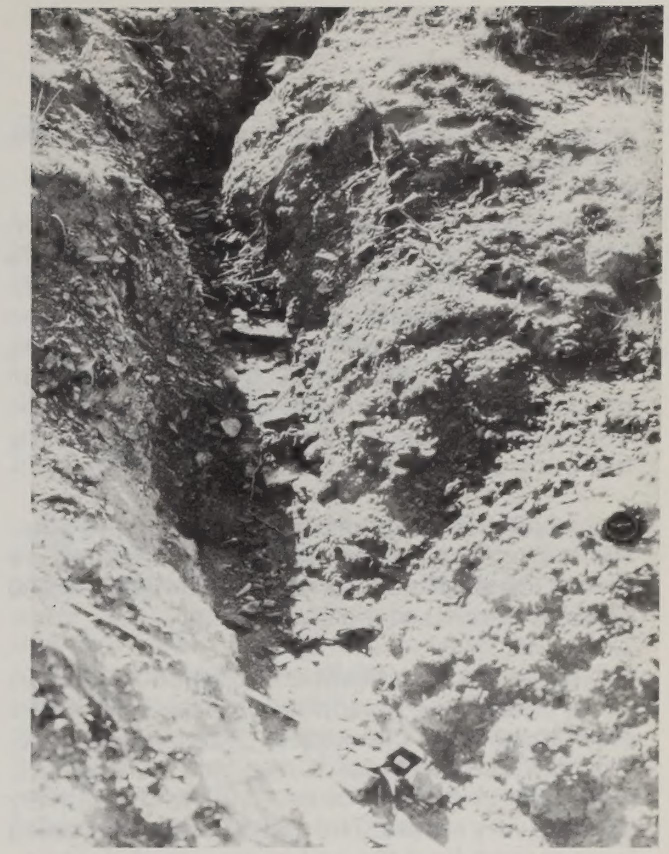
	Percentage and Acreage BLM-Managed Land[a]											
	Stable(4%)		Slight (19%)		Moderate (50%)		Critical (14%)		Severe (1%)		Not Identified(12%)	
Existing AMPS	5,144	2%	28,919	14%	124,715	58%	34,864	16%	3,791	2%	16,200	8%
Revised AMPs	756	1%	17,226	12%	89,765	65%	26,284	19%	142	0.1 %	4,770	3%
Proposed AMPs	27,210	6%	100,722	23%	189,948	43%	55,625	13%	3,746	1%	60,929	14%
Non-AMPs	4,446	4%	25,749	21%	49,414	41%	9,076	8%	1,120	1%	30,486	25%
Total	37,556		172,616		453,842		125,849		8,799		112,385	

SOURCE: BLM, 1979.

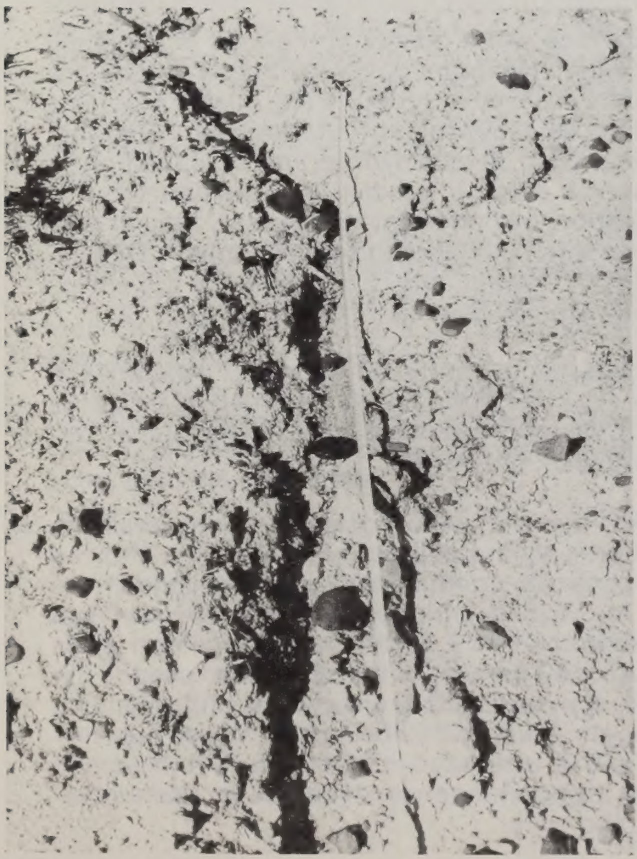
a. Unallotted areas are not included in these figures.



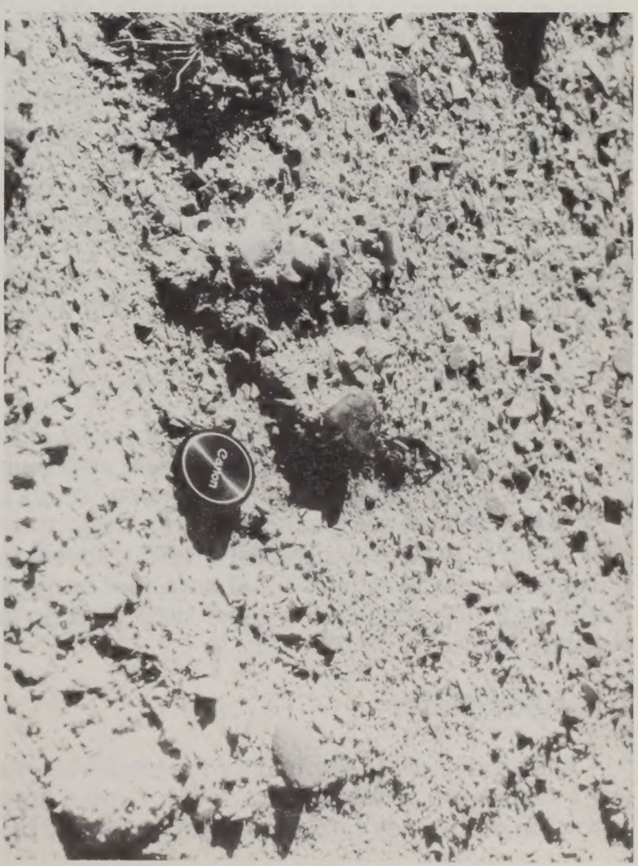
1. **Sheet Erosion**



2. **Gully Erosion**



3. **Rill Erosion**



4. **Soil Pedestaling**

slower and surface runoff is increased, and this increases erosion.

Soil compaction is especially noted along drainages and near additional water sources, where livestock tend to congregate. However, significant compaction also has been found on the open range away from water on 30 AMPs comprising approximately 4,500 to 7,000 acres. This is an indication of early spring livestock turnout, when soils are too moist. On these allotments the early turnout is a significant management problem.

Compaction problems are possible on 49 other AMPs where soils susceptible to compaction are found. These soils comprise approximately 76,000 acres (8 percent of the study area).

Most of the significant compaction found was in the Beaverhead planning unit. Specific AMPs are Rape Creek, Chinatown, Exchange Pasture, Horse Prairie Livestock, Cross, and many others. Compaction ranged in severity from relatively slight to very severe. The depth of the compacted layer ranged from the soil surface to six inches.

Severe compaction has been documented on existing AMPs under rest-rotation grazing systems that have been in effect for several cycles. However, the extent of the compaction before implementation of the rest-rotation systems is not known. The extent of the present compaction in the study area is not accurately known, nor is there any quantification of infiltration rates and bulk densities. However, studies have been proposed to gather this information. When these studies are implemented, the information gathered will help to determine the effectiveness of the proposed and existing AMPs.

WATER RESOURCES

Water Use

The major consumptive use in the EIS study area is irrigation; 835,000 acre-feet per year being the net consumption. Domestic use is about 22,000 acre-feet per year (Montana, Department of Natural Resources [MDNR] 1975). Livestock use in the study area is 3,500 acre-feet per year, with 128 acre-feet being used with grazing on public lands.

Surface Water

The study area is drained by the headwaters of the Columbia and Missouri rivers. Only a small portion of the area (around Butte) is drained by a tributary of the Columbia River--the Clark's Fork, which flows northward. The rest of the area is drained by various tributaries to the Missouri.

The Red Rock River drains the southern part of the area, flowing into the Clark Canyon Reservoir. Outflow from the reservoir forms the Beaverhead River, which joins the Ruby and Big Hole rivers at Twin Bridges to form the Jefferson River. The Big Hole drains the northwest part of the study area, and the Ruby drains the area between the Beaverhead and Madison drainages. The Jefferson River flows north out of Twin Bridges, across the study area boundary.

The easternmost part of the area is drained by the Madison River, which flows northward. Outside the study area, the Jefferson and Madison rivers converge with the Gallatin River to form the Missouri River.

Surface water is abundant, with many perennial streams feeding the major tributaries. Surface runoff for the whole area averages 5 inches, with values ranging from 1.5 to 11.5 inches per year. Low flow periods occur in July and August and in December and January. The Water Resources map in the map supplement shows the location of the major streams in the area and their average annual discharges at gaged points.

Surface water quality in the area is generally excellent. Nonpoint pollution related to land use results in the most serious water quality problems in the Upper Missouri tributaries basin. Logging, overgrazing, stream hydrograph manipulation by reservoir storage, subdivision development, and irrigation are important factors that affect or may affect water quality in the area (Montana, Department of Health and Environmental Sciences, Water Quality Bureau [MWQB] n.d.b.).

Water temperatures of the major tributaries in the area range from 0 to 25.5 degrees Celsius (U.S., Department of the Interior, Geological Survey [USDI, GS] 1978).

A two-year inventory of surface water quality in the area by the University of Montana showed that specific conductivity readings ranged from 27 to 1,625 micromhos, and that pH readings were from 6 to 8.9. Fecal and total coliform levels in up to 69 percent of the samples exceeded the state standards of 200 colonies per 100 milliliters (Foggin, Reid, and Gilbert 1978). These high levels can be attributed in part to the fact that cattle seek the riparian zones of streams for shade, shelter, and water.

Severe erosion with resultant sedimentation is occurring in the Grasshopper Creek and Muddy Creek basins. Sediment problems in Grasshopper Creek stem from the steeply piled mining spoils that form its banks. The banks of Muddy Creek, where soils already are susceptible to geologic erosion, have been subjected to accelerated erosion.

The University of Montana study results showed that suspended sediment concentrations near the mouth of Muddy Creek ranged from 44 parts per million (ppm) low flow to 5,680 ppm high flow. A level of 50 ppm is detrimental to salmonid reproduction and feeding.

A Montana Water Quality Bureau study of the biological water quality in southwestern Montana in 1977 and 1978 classified the streams, in very general terms, as good, fair, or poor. Muddy Creek was rated poor; Beaverhead River, Red Rock River, and Grasshopper Creek were rated fair. The rest of the major streams were rated good (MWQB 1979).

Sediment estimates for the study area were arrived at with the use of the Pacific Southwest Inter-Agency Committee (PSIAC) method. Current estimates of sediment production are shown in table 3-12 in chapter 3. The PSIAC method was designed to estimate sediment yield (transported by water) from areas between 0.1 square mile and 500 square miles, depending upon resource inventory and sampling intensity. The method takes into account both the sediment yielded from overland flow and that produced from the stream bank channel.

In general, the impact of increased or decreased sediment yield resulting from a proposed change in land use will depend on the changes in (1) the amount of bare ground, (2) soil surface disturbance, (3) utilization of natural resources, and (4) stream bank stability. From estimates of the changes in these parameters, various sediment yield projections were made for the proposed action and the alternatives.

Groundwater

Groundwater, which is widely available in the Upper Missouri tributaries basin, is used for livestock and irrigation and for municipal and domestic purposes. Its occurrence, availability, and quality are closely related to geological conditions. The area has a long and complex geological history and contains a wide variety of rock types of many different geological ages. The basin is characterized by large mountain ranges and broad, alluvium-filled valleys.

Generally groundwater has not been developed in the pre-Cambrian and Paleozoic rocks, but small to moderate quantities of good quality water should be available. Few wells have been drilled in the Mesozoic rocks; however, those that exist are thought to contain small to moderate quantities of good quality water. Tertiary sedimentary rocks yield large quantities of good quality water in the valleys along the Ruby, Madison, and Jefferson rivers and in portions of the Big Hole and Beaverhead drainages.

In some areas, glacial deposits of Pleistocene age yield large quantities of good quality water. Groundwater from alluvium of Pleistocene and Recent age is widely used as a source of water for livestock and for domestic use in the basin (MWQB n.d.a.).

An assessment by the state of Montana indicates that groundwater quality in western Montana is generally good, with specific conductances less than 700 micromhos except at some points along the Beaverhead River. This quality of water is suitable for most uses (MWQB 1978). Table 2-3 shows the consolidated aquifers of the study area, their storage, and the annual recharge in acre-feet.

TABLE 2-3

CONSOLIDATED AQUIFERS

	Groundwater in Storage, Available to Wells (acre-feet)	Recharge (acre-feet)
Big Hole Basin	1,100,000	180,000
Ruby River valley	35,000	6,000
Beaverhead River valley	234,000	40,000
Red Rock River valley	200,000	40,000
Madison River valley	260,000	40,000
Jefferson River valley	110,000	18,000
Butte, Montana	200,000	10,000
	2,139,000	334,000

SOURCE: Montana, Water Resources Board, Groundwater in Montana, Inventory Series Report 16 (Helena, MT, 1969).

THE BIOLOGICAL ENVIRONMENT

VEGETATION

The vegetation communities of southwestern Montana are highly variable and complex because of differences in precipitation, soils, geology, topography, and human activities. Major vegetation types are listed by allotment in Appendix 3, and the existing ecological condition of these types is shown. The Vegetation Types map in the map supplement is derived from a Missouri River basin survey, recent forage inventory surveys, topographical maps by the Geological Survey, and some satellite imagery. It will be noted that the vegetation map covers private as well as federal lands, while acreage figures include only federal lands.

The major vegetation types occurring within this area are grassland, meadow, sagebrush, mountain shrub, conifer, and waste. A specific description and discussion of each of these types is found at the end of this section under their respective headings. The riparian vegetation type, although not a major vegetation type in terms of acreage, has exceptional values for wildlife, recreation, and watershed. It is described and discussed in detail in a separate section under "Terrestrial Wildlife" in this chapter.

Range Condition and Trend

The range condition of the allotments within the EIS study area is expressed as excellent, good, fair, poor, and not identified. These condition classes, with the exception of "not identified," reflect the current vegetation composition of the range in relation to what the composition would be in climax. Soil and climate are two major factors that determine the kind and amount of climax vegetation. Once the types of soil and climate have been determined for a particular range site, the climax plant community for that site can be determined even though the vegetation may have deviated from climax.

The climax plant community for an identified range site was determined with the use of technicians' guides developed by the Soil Conservation Service, U.S. Department of Agriculture. Range survey information was used for the current vegetation composition, and soils information was taken from surveys made by the University of Montana, Montana Forest and Conservation Experiment Station (1978), and by the BLM and the Soil Conservation Service.

The "not identified" class reflects a lack of soils information in a few isolated areas with which to determine the range site, or indicates that the soil classification was not identified with a range site in the 1978 University of Montana soil survey report.

Range condition is an expression of departure from potential vegetation composition (Dyksterhuis 1949, p. 106). As Dyksterhuis points out on page 107, range classified in excellent condition could be producing less than maximum forage. For example, a timber site near climax or excellent condition may provide little livestock forage because of a dense canopy cover. On the other hand, the California annual grasslands are managed to maximize forage production in its present poor condition class. Therefore, the range management goal may be to maintain range condition at something less than climax in order to maximize forage production. Appendix 3 displays range condition by vegetation type within each allotment. Allotments are further identified by grazing system and management status. Table 2-4 is a summary of the present range condition data from Appendix 3.

Overall range condition for the entire EIS study area is 10.5 percent excellent, 43.7 percent good, 28.2 percent fair, and 2.0 percent poor, with 15.6 percent in the "not identified" class. The Range Condition map in the map supplement shows all allotments with 0 to 25, 26 to 50, 51 to 75, and 76 to 100 percent of their total public land acreage in good and/or excellent range condition. The "not identified" class was deleted from the total public acreage for this computation.

The present range condition determinations were made from vegetation and soils data gathered during 1976, 1977, and 1978. Range trend information is collected each year on the existing and revised AMP allotments. Several standard BLM techniques are used to establish trend, including 3 foot by 3 foot trend plots, point transects, and aspect photos. Factors considered include vegetation composition, ground cover, seedlings, and bare ground. These factors are compared with previous studies to determine trend.

The relative ecological condition is judged to be in an upward trend, static, or in a downward trend on the basis of these studies (Appendix 3). For allotments without an implemented management system (proposed AMP and non-AMP allotments) the apparent trend was determined by on-the-ground inspection and professional judgment based on observations on increaser and decreaser species, plant vigor, relative plant composition, vegetation associations, historic records,

TABLE 2-4

PRESENT RANGE CONDITION
BY ALLOTMENT MANAGEMENT STATUS AND VEGETATION TYPE

Allotment Management Status	Vegetation Type	Total Acreage	Range Condition (acres)				
			Excellent	Good	Fair	Poor	Not Identified
Existing AMP	Grassland	67,629	13,614	37,770	15,877	163	205
	Meadow	1,051	--	355	402	294	--
	Sagebrush	114,283	8,653	79,214	25,426	744	246
	Mountain shrub	3,931	1,304	2,365	177	85	--
	Conifer	20,199	748	1,964	4,163	1,849	11,475
	Waste	6,540	--	--	891	32	5,617
Subtotal		213,633	24,319 (11.4%)	121,668 (56.9%)	46,936 (22.0%)	3,167 (1.5%)	17,543 (8.2%)
Revised AMP	Grassland	51,160	13,703	24,328	12,134	995	--
	Meadow	374	--	113	133	128	--
	Sagebrush	74,749	10,495	38,637	25,362	255	--
	Mountain shrub	5,565	2,251	2,945	369	--	--
	Conifer	6,460	1,778	123	901	--	3,658
	Waste	633	--	--	--	--	633
Subtotal		138,941	28,227 (20.3%)	66,146 (47.6%)	38,899 (28.0%)	1,378 (1.0%)	4,291 (3.1%)
Proposed AMP	Grassland	133,897	23,944	64,749	41,272	3,856	76
	Meadow	8,165	12	3,705	4,030	413	5
	Sagebrush	209,183	11,513	107,893	84,501	4,498	778
	Mountain shrub	7,404	1,857	2,504	2,093	116	834
	Conifer	46,588	774	3,212	4,838	1,659	36,105
	Waste	32,943	--	--	70	--	32,873
Subtotal		438,180	38,100 (8.7%)	182,063 (41.6%)	136,804 (31.2%)	10,542 (2.4%)	70,671 (16.1%)

TABLE 2-4, Continued

Allotment Management Status	Vegetation Type	Total Acreage	Range Condition (acres)				
			Excellent	Good	Fair	Poor	Not Identified
Non-AMP	Grassland	41,117	4,154	17,809	17,817	1,062	275
	Meadow	3,748	361	1,324	1,325	604	134
	Sagebrush	49,853	2,767	20,714	24,059	1,626	687
	Mountain shrub	4,335	492	638	861	160	2,184
	Conifer	20,105	--	1,313	197	327	18,268
	Waste	3,524	--	877	156	--	2,491
Subtotal		122,682	7,774 (6.3%)	42,675 (34.8%)	44,415 (36.2%)	3,779 (3.1%)	24,039 (19.6%)
Unallotted	Grassland	5,565	1,473	2,657	908	--	527
	Meadow	410	78	205	94	10	23
	Sagebrush	5,903	50	1,221	686	112	3,834
	Mountain shrub	1,414	376	344	23	31	640
	Conifer	12,541	--	--	--	--	12,541
	Waste	15,357	--	38	14	--	15,305
Subtotal		41,190	1,977 (4.8%)	4,465 (10.8%)	1,725 (4.2%)	153 (0.4%)	32,870 (79.8%)
Total		954,626	100,397 (10.5%)	417,017 (43.7%)	268,779 (28.2%)	19,019 (2.0%)	149,414 (15.6%)

SOURCE: BLM, 1979.

TABLE 2-5

CURRENT TREND CONDITIONS BY ALLOTMENT STATUS

Allotment Status	Trend				Total
	Up	Static	Down	Undetermined	
Existing AMPs					
Acreage	81,561	106,362	15,138	10,572	213,623
Percentage	38.2%	49.8%	7.1%	4.9%	
Revised AMPs					
Acreage	16,339	79,326	39,467	3,809	138,941
Percentage	11.8%	57.1%	28.4%	2.7%	
Proposed AMPs					
Acreage	16,639	174,840	175,053	71,648	438,180
Percentage	3.8%	39.9%	40.8%	16.3%	
Non-AMPs					
Acreage	9,232	55,764	23,897	33,789	122,682
Percentage	7.5%	45.5%	19.5%	27.5%	
Unallotted Areas					
Acreage	3,145	4,424	460	33,161	41,190
Percentage	7.6%	10.8%	1.1%	80.5%	
Total					
Acreage	126,916	420,716	254,015	152,979	954,626
Percentage	13.3%	44.1%	26.6%	16.0%	

SOURCE: BLM, 1979.

and general hydrologic conditions. Trend is displayed by allotment in Appendix 3 and summarized in table 2-5. Livestock forage production is discussed in the "Livestock" section of this chapter and shown in table 2-29.

Grasslands

Grasslands make up approximately 30 percent of the public lands in the study area, or 299,368 acres. Current range condition for this vegetation type is shown in table 2-6.

TABLE 2-6

RANGE CONDITION FOR THE GRASSLAND VEGETATION TYPE

	Excellent	Good	Fair	Poor	Not Identified	Total
Acreage	56,880	147,313	88,008	6,076	1,083	299,368
Percentage	19.0	49.2	29.4	2.0	0.4	100.0

SOURCE: BLM, 1979.

Grasslands fall into two major categories: the lower elevation, dry sites, which are dominated by needle-and-thread and blue grama, and the higher elevation, more moist sites, which are dominated by bluebunch wheatgrass and Idaho fescue. (Common and scientific names of plants in the study area are listed in Appendix 17). Generally this change takes place at about 6,000 feet elevation; however, this is not consistent throughout the study area.

The lower, dryer needle-and-thread/blue grama grasslands are used primarily for spring grazing before stock go to summer use areas. The spring use that has historically occurred on these sites has led to a suppression of cool season species such as needle-and-thread and bluebunch wheatgrass and given a competitive edge to warm season species, principally blue grama. Suppression of bluebunch wheatgrass has been nearly complete, and very little if any bluebunch can now be found on the needle-and-thread/blue grama grasslands.

Blue grama is not a major climax species for this area and is responsible for lowering the range condition to poor and fair. The low growth form and warm season aspects of blue grama also make it a low forage producer and less than desirable for spring grazing.

Improvement of range condition and increased forage production would involve increasing the composition of desirable cool season species and suppressing the warm season blue grama. Blue grama is a very persistent plant once established, and it is not easily cycled out by grazing programs or rest, especially in the study area, where economic demands will always be for spring grazing. Consequently, little improvement, with or without management, will occur without vegetation manipulation practices aimed at reducing the composition of blue grama and increasing the composition of more desirable cool season climax species.

The higher, more moist bluebunch wheatgrass/Idaho fescue grasslands are generally not used for grazing in early spring as are the lower grasslands, because of remoteness or later season development. Some shrubs, such as sagebrush, are also present. Range condition is primarily good and fair. Idaho fescue, although a fair to good forage producer, is considered an increaser species, and too much Idaho fescue in the composition keeps these ranges from being in excellent condition. For this same reason, good condition range will generally not go to excellent condition with management, even though vigor may improve and forage production increase with intensive management.

The bluebunch wheatgrass/Idaho fescue grasslands in fair condition will generally improve to good condition with intensive management, and poor condition range will also show improvement. Sagebrush will become increasingly evident in the plant community with deterioration in range condition, sometimes to the point that the grassland type will become a sagebrush type. It is therefore probable that some of the sagebrush type to be discussed later was once part of the grassland type. Brush control by spraying, burning, or possibly plowing and seeding would hasten the recovery of these deteriorated grasslands and prevent them from converting to a sagebrush type, or could even bring some of the sagebrush type back to a grassland type. Just how much of the sagebrush type was once grassland is not known at this time.

Meadows

Most of the meadow type in southwestern Montana is located on private land; about 1 percent of the public land, 13,748 acres, is classified as meadow. Current range condition for this vegetation type is shown in table 2-7.

TABLE 2-7

RANGE CONDITION FOR THE MEADOW VEGETATION TYPE

	Excellent	Good	Fair	Poor	Not Identified	Total
Acreage	451	5,702	5,984	1,449	162	13,748
Percentage	3.3	41.5	43.5	10.9	1.2	100.0

SOURCE: BLM, 1979.

Most of the meadow type is close to water and highly productive. It is therefore heavily used by both livestock and wildlife. Small stringer type meadows occur along streams throughout other vegetation types, but they are too small to delineate on the Vegetation Types map.

The meadow type can be divided into two basic subtypes for discussion. They are wet meadows, where soil moisture is abundant throughout the year, and dry meadows, which have abundant soil moisture during spring and early summer but dry out as the season progresses.

Wet meadow vegetation will grow and produce forage throughout the summer, unlike vegetation in other types that will produce seed and then essentially stop growing during the dry period of the summer, when moisture becomes a limiting factor. The herbage of wet meadow vegetation has higher moisture content and lower nutrient quality than herbage found in the other vegetation types. Bluegrasses, sedges, rushes, bromegrasses, and Idaho fescue represent most of the herbage produced. Woody riparian vegetation is commonly found in association with wet meadows.

Many wet meadow plants reproduce primarily by rhizomes and basal tillering, as opposed to plants that reproduce only from seed. Because the plants can readily reproduce vegetatively, they can stand a high degree of use and not be significantly damaged. Use of the plant actually promotes vegetative reproduction, and complete nonuse can result in stagnation and reduction in annual forage production. Deterioration occurs through mechanical damage to soils and plants.

Ecological range condition of wet meadows is somewhat misleading and is not particularly applicable because wet meadows are traditionally thought of as subclimax, and condition based on climax will not allow subclimax sites to be rated in excellent condition. Therefore, most wet meadows are rated in fair and good condition, even though they may be in the best condition possible for their successional stage of development.

Dry meadows occur when soil moisture is not truly a limiting factor, but they do dry out in comparison to wet meadows during the summer. The dry meadows are not as productive as wet meadows, but they furnish higher quality forage. Bunch grasses that reproduce by seed, such as slender wheatgrass, bearded wheatgrass, and basin wildrye, become more important than in wet meadows, where vegetative reproduction is more important. Dry meadow plants have more specific growth periods and physiological stages than do wet meadow plants. Deterioration occurs through physiological damage to plants, and range condition is highly dependent on the level of use and type of management.

Dry meadows have good potential for improvement in range condition, as has been demonstrated in the study area, where strong upward trends have been observed on dry meadows that were abused prior to implementation of a grazing management system.

Sagebrush

The sagebrush type makes up approximately 48 percent of the public lands in the study area, or 453,971 acres. Current range condition for this vegetation type is shown in table 2-8.

TABLE 2-8

RANGE CONDITION FOR THE SAGEBRUSH VEGETATION TYPE

	Excellent	Good	Fair	Poor	Not Identified	Total
Acreage	33,478	247,679	160,034	7,235	5,545	435,971
Percentage	7.4	54.6	35.2	1.6	1.2	100.0

SOURCE: BLM, 1979.

As a rule, a mixture of sagebrush species occurs on the sagebrush type. At least six species and several subspecies and varieties of sagebrush have been identified in southwestern Montana (Morris, Kelsey, and Griggs 1976). Big sagebrush communities make up the bulk (86 percent) of this type on public lands in the study area. Low sage, alkali sage, three-tip sage, and black sage are found intermixed on certain soil types. Basin sage is found in drainages, sand dunes, and on other deep soil sites. Other shrubs found in the sagebrush type include Douglas' rabbitbrush, rubber rabbitbrush, fringed sage, horsebrush, snakeweed, Woods rose, common

5. **Good Condition Grassland Vegetation Type**

This good condition grassland is below 6,000 feet elevation. The dominant grass is needle-and-thread. The study area contains 299,368 acres of grassland vegetation type.

6. **Meadow Vegetation Type**

Associated riparian communities are shown in the background. The study area contains 13,748 acres of meadow vegetation type.

juniper, common snowberry, and curlleaf mountain mahogany.

Sagebrush communities are present in nearly every soil type and precipitation zone; consequently, the potential for change and increased productivity are quite variable. The sagebrush type, although not the most productive vegetation type, produces the greatest amount of forage because of its great extent. For this same reason it also has the greatest potential for increasing overall forage production in the study area.

Because big sagebrush communities make up the bulk of the sagebrush type in the study area, the following discussion centers on the big sage communities. Improper grazing practices have increased the density of big sage and expanded sage communities into the meadow and grassland types. Suppression of wildfire has also been a factor in this encroachment. Vegetation manipulation practices and subsequent management have also influenced sagebrush communities. The long-term effect, however, has been more a function of the subsequent management than of the original manipulation.

Big sagebrush has several subspecies, two of which make up the primary communities of big sage in southwestern Montana. Wyoming sage (*Artemisia tridentata wyomingensis*) communities are located on the lower, dryer, hotter sites, primarily below 6,000 feet elevation. These communities are often found in association with the needle-and-thread/blue grama grass ranges, and much of what has been discussed about needle-and-thread/blue grama ranges in the "Grasslands" discussion can be said of the Wyoming sage communities. The Wyoming sage communities, however, have more needle-and-thread and some bluebunch wheatgrass in the composition and less blue grama than the needle-and-thread/blue grama communities. Forb composition is sparse.

Moisture competition in the Wyoming sage communities is the primary limiting factor for plants, and it results in a considerable amount of bare ground. Moisture stress caused by roots of existing plants is great enough to prevent establishment of new plants in the interspaces. Because of the low denisty of vegetation, especially grasses, burning would not be a practical method of controlling sagebrush. Chemical or mechanical methods would be more practical.

Because Wyoming sage communities are on the lower, drier sites, they are available for spring grazing by livestock earlier than the higher elevation ranges, and they have historically been used for spring grazing. This has resulted in an increase in both the amount and extent of Wyoming sage. It is very probable that some of the Wyoming sage communities were once grasslands. The extent of this conversion from grasslands to sagebrush, however, is unknown.

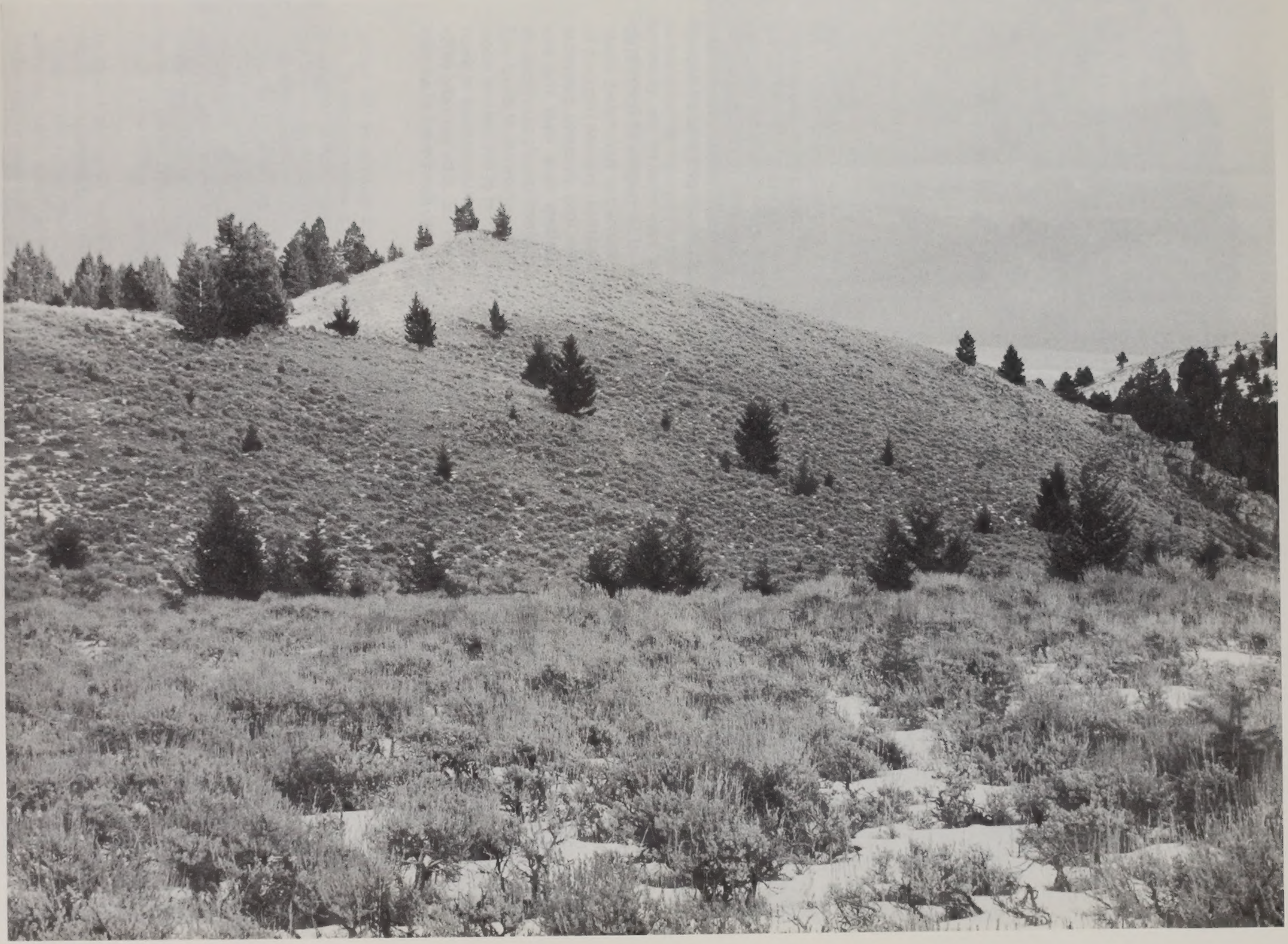
Mountain sage (*Artemisia tridentata vaseyana*) communities are located in the higher foothills and mountains, generally above 6,000 feet elevation, where precipitation is higher and seasons cooler than on the Wyoming sage sites. Bluebunch wheatgrass and Idaho fescue are the primary grass species found in the mountain sage type. Bluegrasses, mountain bromes, wheatgrasses, and numerous forbs and shrubs are also found in this association. Conifers may also be found encroaching into mountain sage communities where the conifer and sage types join.

It is not uncommon to find great expanses of continuous mountain sage communities that under natural or climax conditions would be broken into a mosaic of grasslands and sagebrush. This monoculture of sagebrush has generally resulted from improper livestock grazing and suppression of wildfire. Winward and Tisdale (1977) reported that mountain sage shows a strong tendency to increase in plant density and foliage cover in stands where the herbaceous vegetation has been disturbed. Wyoming sage was reported to react the same, but to a lesser extent.

The large amount of mountain sage and the occurrence of Idaho fescue, both increaser plants, are the principal reasons that more of the sagebrush type is not classified in excellent condition. Brush control, by burning or spraying, and proper grazing practices would reduce the composition of mountain sage, but Idaho fescue probably would not decrease in composition and would continue to prevent the type from going to excellent condition. In other words, reaching excellent ecologic range condition in the mountain sage communities is generally not an attainable goal.

Mountain Shrub

The mountain shrub type makes up approximately 2 percent of the public lands in the study area, or 22,649 acres. Current range condition for this vegetation type is shown in table 2-9.



7. **Mountain Sagebrush Community**
Some conifer encroachment can be seen in this mountain sage community within the sagebrush vegetation type, which occupies 453,971 acres in the study area.

TABLE 2-9

RANGE CONDITION FOR THE MOUNTAIN SHRUB VEGETATION TYPE

	Excellent	Good	Fair	Poor	Not Identified	Total
Acreage	6,280	8,796	3,523	392	3,658	22,649
Percentage	27.7	38.8	15.6	1.7	16.2	100.0

SOURCE: BLM, 1979.

This type is generally characterized by steep slopes with rocky soils.The major subtypes within the study area are curlleaf mountain mahogany and Rocky Mountain juniper. These subtypes are found on the hotter, drier slopes with understory vegetation that includes Indian ricegrass, Idaho fescue, and bluebunch wheatgrass. Forb composition is sparse and consists principally of phlox. Common shrubs include low sage, black sage, horsebrush, rubber rabbitbrush, Douglas' rabbitbrush, winterfat, fringed sage, broom snakeweed, and prickly pear. Limber pine and Douglas-fir are sparse tree components.

The mountain shrub type has limited value for livestock forage production because of low productivity of forage and rough topography. The major importance of this type is for wildlife habitat.

Conifers

Conifers make up approximately 11 percent of the public lands in the study area, or 105,893 acres. Current range condition for this vegetation type is shown in table 2-10.

TABLE 2-10

RANGE CONDITION FOR THE CONIFER VEGETATION TYPE

	Excellent	Good	Fair	Poor	Not Identified	Total
Acreage	3,300	6,612	10,099	3,835	82,047	105,893
Percentage	3.1	6.3	9.5	3.6	77.5	100.0

SOURCE: BLM, 1979.

The conifer type falls into two major categories. Douglas-fir is the largest category, covering 86 percent of the conifer type. The remainder of the conifer type is made up of lodgepole pine and other conifers.

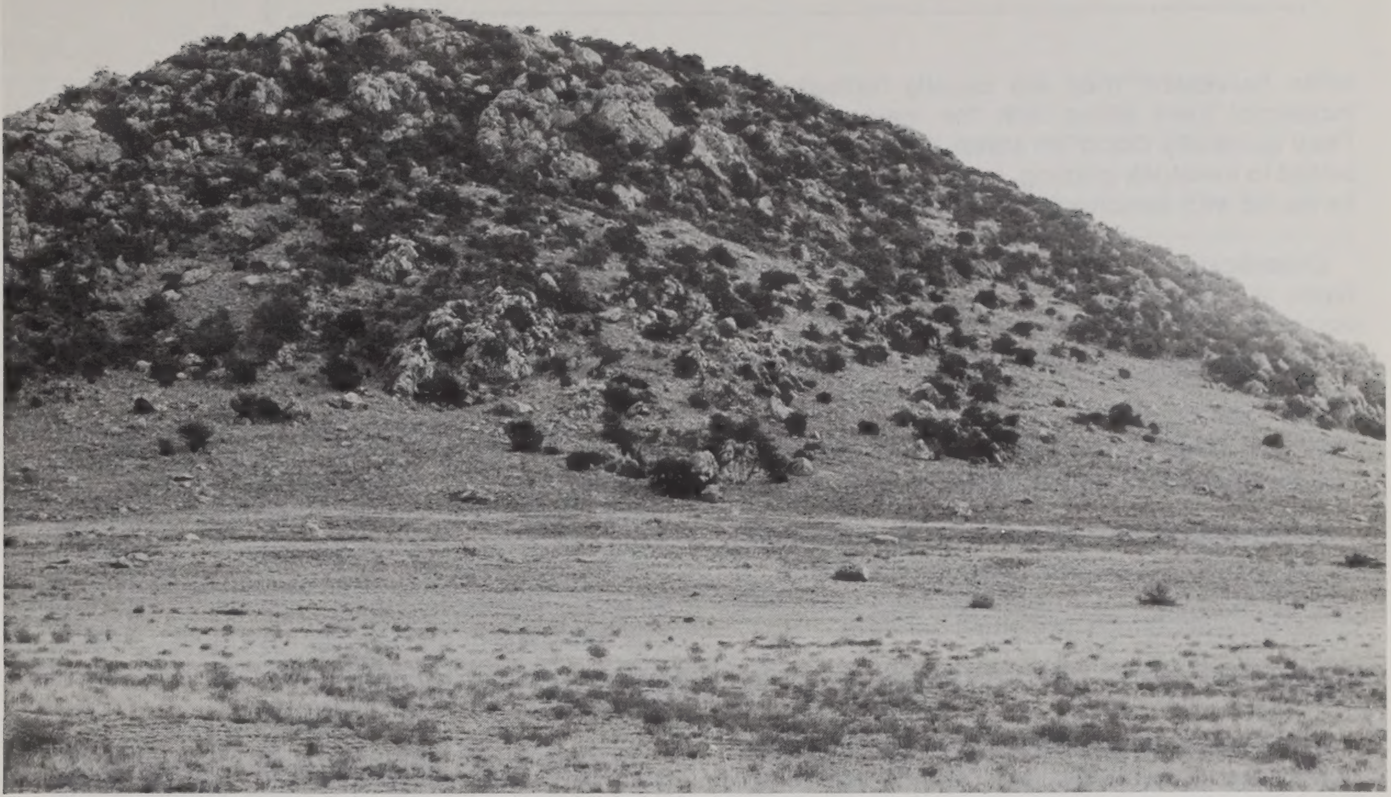
Douglas-fir occurs on a broad range of environments from warm, dry southern aspects through cool, moist northern slopes. The moister sites have the best potential for timber production. Their denseness discourages growth of forage plants. The more open, drier stands are more useful for forage production. Understory species on the drier sites are predominantly bluebunch wheatgrass and Idaho fescue. Big sagebrush often occurs in the understory or is intermingled in open parks. Pinegrass is also found on many of the drier sites.

Lodgepole pine exists as a seral type; that is, a temporary occupier of sites that have suffered prior denudation by fire, insects, or logging. Lodgepole pine is a prolific seed producer and readily invades denuded areas in the conifer type when a seed source is available, especially is the area has been burned. Lodgepole is becoming a valuable species for wood products and is not susceptible to attack by the western spruce budworm, which is a serious enemy of Douglas-fir. The mountain pine beetle occasionally attacks mature lodgepole, but it can often be silviculturally controlled.

Established stands of lodgepole support little forage. As stands are burned or harvested, especially when they are clearcut, grasses respond to release, and these sites may become desirable forage areas until conifers take over the site again. Overmature, decadent stands of lodgepole are characterized by large amounts of dead and downed material. This is part of the natural ecology of the species. Large accumulations of dead material, historically cleaned up by periodic wildfire, remain as a deterrent to movement of wildlife and domestic livestock.

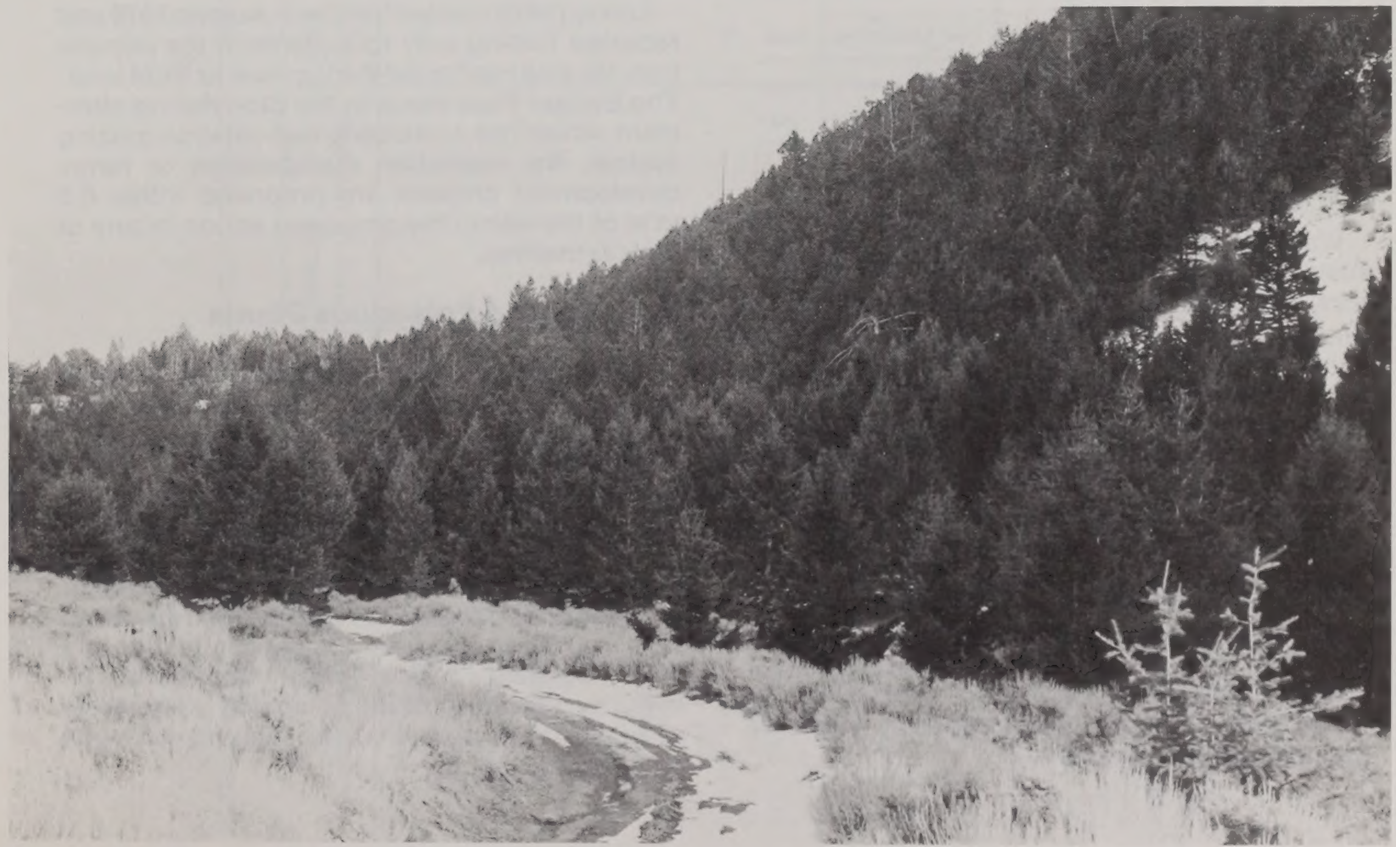
Engelmann spruce and subalpine fir occur most often as understory components of the conifer type because of their shade tolerance. These species are easily damaged by fire, and are usually found along the moist soils of creek bottoms and in high alpine areas that are rarely disturbed by fire. They are usually harvested as incidental trees along with the major species. They often occur in dense timber stands or open rocky areas that are generally unsuited to grazing, but they may also be found along riparian zones subject to heavy livestock concentrations.

Whitebark pine and limber pine are found at medium to high elevations, generally in small, isolated stands on rocky outcrops, often in association with lodgepole pine. Their short, gnarled growth form limits their commercial timber value;



8. **Mountain Shrub Vegetation Type, with Grassland and Waste**

Curlleaf mountain mahogany dominates the mountain shrub vegetation type shown here. Poor condition grassland is in the foreground, and the upper slope would be classified as waste. Mountain shrub acreage in the study area is 22,649; waste amounts to 58,997 acres.



9. **Conifer Vegetation Type**

The study area contains 105,893 acres of conifer vegetation type. Foreground is mountain sage community.

when harvested, they are usually included as incidental trees along with the major species. They generally occur on steep, rocky areas not suited to livestock grazing, but occasionally may be found with bunchgrass understories.

Classification of range condition on most conifer types is inappropriate, since conifers usually occur on soils that are not identified as range sites under range condition criteria. Those conifer types with identified range sites are mostly either timber encroachment into another vegetation type, but mapped as a timber type, or meadows and parks within a timber mapping unit.

Observations have shown only rare browsing by livestock on mature conifers. Browsing or trampling by wildlife or livestock sometimes kills or deforms seedlings and small conifers.

Waste

Waste makes up approximately 6 percent of the public land in the study area, or 58,997 acres. The few waste sites that were classified are shown in table 2-11.

TABLE 2-11

RANGE CONDITION FOR THE WASTE VEGETATION TYPE

	Excellent	Good	Fair	Poor	Not Identified	Total
Acreage	0	915	1,131	32	56,919	58,997
Percentage	0	1.6	1.9	0.1	96.5	100.0

SOURCE: BLM, 1979.

Waste is so designated because of extremely steep slopes, lack of any vegetation, mine spoils, rock outcrops, or any combination of these or similar factors. Waste also includes areas of dense timber and areas so rough and inaccessible as to make their future use for livestock grazing improbable. The waste designation refers only to the value for livestock grazing, and has no reference to other resource values. Vegetation that may be found on waste when it does occur may include Rocky Mountain juniper, sagebrush, Douglas-fir, lodgepole pine, curlleaf mountain mahogany, Idaho fescue, and bluebunch wheatgrass. This type will sometimes verge on being mountain shrub or conifer type. Classification of range condition is generally not appropriate on waste because most sites classified as waste are not identified as range sites.

Threatened and Endangered Plants

There are no officially recognized threatened or endangered plant species in the study area; however, four plant species have been identified as potentially threatened or endangered in Montana on the basis of an unpublished study conducted in 1976 for the Forest Service by T.J. Watson, Jr., an assistant professor of botany from the University of Montana (Watson 1976).

The species Lemhi penstemon (*Penstemon lemhiensis*) was the only one of the four species found by Watson in the study area. Watson found Lemhi penstemon in the localities of Badger Pass, Lemhi Pass, Big Hole Battlefield, and Argenta. The Badger Pass site was reported by Watson to be on Forest Service land, but from his description it appears that the location is actually on BLM land. Watson describes the situation at the time of his investigation as follows:

"At one site (i.e., Badger Pass), only five plants were found. Portions, including young stems, had been eaten by cattle. Surrounding vegetation likewise had been grazed and the terrain had been somewhat disrupted by the hooves of the wandering ruminants. This small population is doing poorly against such forces."

Lowry (1979) visited the site in August 1979 and reported finding only four plants in the population. He also confirmed the location as BLM land. The Badger Pass site is in the Stonehouse allotment, which has an existing rest-rotation grazing system. No vegetation manipulation or range development projects are proposed within 0.5 mile of the site in the proposed action or any of the alternatives.

Noxious and Poisonous Plants

Several noxious and poisonous plant species are found in the study area. Although these species do not pose a major problem, livestock operators have occasionally reported livestock losses that are significant to individual operations. The main reason that there are not more livestock losses is that ranges infested with poisonous plants, principally larkspur, either are not used or are used after larkspur has matured and started to cure out. This generally happens in mid or late July. The plant's overall toxicity decreases with maturity; therefore, cattle poisoning is less likely to occur. Livestock are less likely to eat such plants at this time.

TABLE 2-12

Allotment Name and Number		Noxious Species									Poisonous Species		
		Musk-thistle	Common Tansy	Whitetop	Leafy Spurge	Dalmatian Toadflax	Canada Thistle	Houndstongue	Burdock	Spotted Knapweed	Caraway	Tall Larkspur	White Pointloco
Stonehouse	0005			X									
Armstead-Upper Sage	0007							X	X	X			
Crooked Creek	0010			X							X		
Matador	0012												
Bannack	0015	X						X					
Dixon Mountain	0022							X					
Anderson Field	0026							X		X			
Snowline	0029											X	
Red Mine	0034	X								X			
Buck Creek	0038												
Ballard	0104									X			
Anderson Field	0105									X			
Hansen Creek	0108	X			X			X		X			
Red Canyon	0113												
Bill Hill Creek	0114							X		X			
Taylor Cr./Buffalo Cr.	0122	X						X					
Johnson Bros.	0141									X			
Long Creek	0152	X								X			
L. Martinell	0164												
E. Rebich	0174												
Railroad	0175							X					
Phalarope	0177									X			
Seybold	0187									X			
Selkirk	0188							X	X				
Iron Rod	0268									X			
Chalk Bluff	0300												
Copp Jackson	0301									X			X
Garrison	0314									X			
Jerry Creek	0318											X	
Lost Creek	0322									X			
Tungsten Mill	0326												X
													X

TABLE 2-12, continued

Allotment Name and Number		Noxious Species										Poisonous Species	
		Musk-thistle	Common Tansy	Whitetop	Leafy Spurge	Dalmation Toadflax	Canada Thistle	Houndstongue	Burdock	Spotted Knapweed	Caraway	Tall Larkspur	White Pointloco
Birch Cr.-Willow Cr.	0328	X											X
Deep Creek	0339	X					X			X			
Leffler Creek	0340					X							
Deno Creek	0341									X			
Limekiln	0342		X							X			
Quartz Hill	0343		X			X				X			
Smith	0346												X
Twin Adams	0347												X
White Rock	0349				X								
Alder Creek	0351	X					X					X	
Individual A & B	0370		X		X								
Fish Creek	0371		X		X								
Revenue	0407											X	
Jourdain Creek	0410				X								
Strawberry Ridge	0421											X	
Fletcher Moore	0428											X	
Shelton	0434				X								
Kountz	0443				X								
Walker Creek	0454									X			
Bar Seven	0457	X											
Squaw Creek	0462									X			
North Fork	0482							X					
Virginia City	0488									X			
Moorse Creek	0504									X			
California Creek	0507						X						
Big Sheep	0513							X					
Hillside	0514									X			
Big Hole	0515									X			
Sweetwater Basin	0518							X					
Virginia City Hill	0521									X			
Copper Mountain	0531						X			X			
Carter Creek	0534				X			X					

TABLE 2-12, continued

Allotment Name and Number		Noxious Species									Poisonous Species		
		Musk-thistle	Common Tansy	Whitetop	Leafy Spurge	Dalmatian Toadflax	Canada Thistle	Houndstongue	Burdock	Spotted Knapweed	Caraway	Tall Larkspur	White Pointloco
Huntsman	0621			X									
Detton	0622												
Truax Creek	0642							X	X				
Granite-Moore	0669							X					
Rio Puerco/Nicholia Sch.	0699									X			
Snowcrest	0734							X		X			
Indian Creek	0741											X	
McKnight Creek	0746											X	
Medicine Lodge	0748	X									X		
Bear Gulch					X								
Fox Gulch													
Pony					X							X	

SOURCE: BLM, 1979.

Occasionally midsummer rains will extend the lush growth stage of larkspur into August, and livestock losses may occur. Larkspur, where it occurs, has become a controlling factor in the development of several AMPs, and this has resulted in deferring the use of larkspur-infested pastures until mid July or even early August.

Ten noxious plant species have been documented on 62 allotments in the study area (see table 2-12). Six of the species (muskthistle, common tansy, whitetop, leafy spurge, Dalmatian toadflax, and Canada thistle) are listed by the state of Montana as noxious plants, and four (houndstongue, burdock, spotted knapweed, and caraway) are listed by individual counties within the area. These species are generally unpalatable to nearly all kinds of livestock, except possibly leafy spurge, which is occasionally eaten by sheep. They are invader species that, once established, will compete with desirable forage species for space, moisture, and soil nutrients.

Only two poisonous plants, tall larkspur and white pointloco, are considered significant with respect to livestock poisoning in the area, and they have been documented as occurring on 14 allotments (see table 2-12). There are undoubtedly other infestations of noxious and poisonous plants that have not been documented.

ANIMALS

Terrestrial Wildlife

BLM biologists rated the current condition of mule deer, elk, antelope, moose, and sage grouse habitats as poor, fair, good, or excellent (tables 3-24 through 3-28). The ratings were based upon existing wildlife transect data on some areas, range condition data, and observations recorded during field reviews of each allotment. The map supplement and the tables mentioned above identify only major habitat areas, not miscellaneous habitats of marginal potential and insignificant value. Each identified wildlife habitat area has the potential to attain at least a good (satisfactory) condition. Areas that were rated poor or fair were not considered satisfactory in terms of meeting wildlife habitat management goals.

Mule Deer

Mule deer are the most abundant big game animal in the study area. BLM-managed public lands serve principally as winter and spring habitats for a significant portion of southwestern Montana's mule deer. (Common and scientific names for animals in the study area are listed in Appendix 16). It is estimated that 7,640 to 9,235 mule deer winter on habitat areas that average 45.7 percent public land (see table 2-13 and the map supplement). Between 8 percent and 85 percent of each area is public land. Population estimates were derived from Montana Department of Fish, Wildlife, and Parks (MDFWP) and BLM aerial surveys, with 10 to 25 percent added, depending upon vegetation types. Estimates are intended to be used only to reflect differences in habitat values and to place public lands in perspective.

Significant mule deer summer and fall habitats are on public lands; however, no summer population data are available for these areas. High, moderate, and low densities indicated in table 2-13 for deer summer-fall habitats are descriptive only, and compare to other southwestern Montana deer populations.

Recent mule deer population trends (1974 to 1979), as indicated by aerial surveys on winter ranges, have been predominantly upward, particularly during 1976 to 1979. Wintering populations on three areas monitored closely by BLM biologists have increased 46 percent to 64 percent during the past five years (BLM files). It is not known if all wintering populations have increased in equal proportions.

Mule deer production is fair on most ranges at present, as indicated by midwinter fawn ratios of 55 to 76 fawns per 100 adult deer, according to MDFWP job progress reports and BLM survey data. The MDFWP rates 48 to 65 fawns per 100 adult deer as fair production, and 66 or more fawns as good. Favorable climatic conditions during 1977, 1978, and 1979 are generally viewed as the principal factor responsible for upward trends in mule deer production and survival.

There are 258,350 acres of mule deer winter habitat on public lands, of which 58 percent is rated unsatisfactory due to poor range condition (table 2-14). Winter habitats are of two general types, mountain shrub (curlleaf mahogany) and sagebrush. Most major deer winter ranges include at least some curlleaf mahogany composition. As a rule, the curlleaf mahogany habitat type consists of small "islands" (5 to 40 acres) within extensive sagebrush types (USDA, FS 1974). Extensive stands of mahogany habitat type (500 to 1,500 acres) occur on seven of the winter habitat areas.

Livestock use of mahogany has been negligible on public lands in recent years, mainly because of a shift from sheep to cattle. Mahogany condition is generally poor as a result of excessive use by deer during the 1960s and early 1970s. Several favorable moisture years (1976 through 1978), combined with moderate winter weather, have resulted in some increases in mahogany production and concurrent reductions in utilization by deer, according to MDFWP progress reports. Actual recovery in mahogany condition has been slight to moderate. On the Iron Rod-Cottonwood and Camp Creek-Soap Gulch winter ranges, some mahogany stands have received very little deer use in recent years, and plant vigor is good.

On wintering areas where mahogany is limited to small stands, mahogany condition remains poor. It is doubtful that recovery will ever occur on small stands, since the presence of relatively few deer can cause plant condition to remain poor. South (1957) documented 100 percent utilization of current annual mahogany growth during the years 1953 through 1956 at Scudder Creek. Mahogany was preferred over all other browse species in the area. Despite large-scale mule deer die-offs during the 1950s, Allen, in a 1968 Montana Department of Fish and Game report, concluded (after further study of Scudder Creek) that habitat degradation, including loss of mahogany, continued through the 1960s (MDF&G 1968a). This pattern was probably typical of mahogany winter ranges throughout southwestern Montana.

Sagebrush types predominate on eight major deer winter habitats (see table2-13). As a rule, a mixture of sage species occurs on sagebrush habitat types. Basin sage is found in drainages, sand dunes, and other deep soil sites. Low sage, alkali sage, three-tip sage, and black sage are found intermixed on certain soil types. On mountain sage sites, Douglas-fir, limber pine, and Rocky Mountain juniper are common components that provide both forage and thermal cover for deer.

Browse diversity is low on all deer winter ranges in the study area; however, diversity is higher on mahogany habitat types than on sagebrush types. On sage types, the principal "mixer" or "secondary browse" species appears to be Douglas' rabbitbrush.

On 58 percent of mule deer winter-spring habitats, the herbaceous component has been significantly reduced by livestock grazing practices. This is particularly critical for deer during the spring period. Grazing by livestock has undoubtedly contributed to increases in sagebrush on some sites.

Mule deer summer habitats may be broadly defined according to the following types: mountain sage, riparian, Douglas-fir, lodgepole pine, and spruce-fir. As a rule, the best quality deer summer habitats include a combination of all of these types. For example, the Blacktail Ridge-Upper Sage Creek area includes all of these types, and the summering deer population there is regarded as high. McCartney Mountain, on the other hand, has principally mountain sage and Douglas-fir types, and summering deer density is judged to be low there (table 2-13). Summer-fall habitat has generally been much less affected by livestock grazing than winter-spring habitat.

It is estimated that 67 percent of summer-fall habitat is in satisfactory condition for mule deer, as indicated by range condition. This relatively good condition is primarily due to these factors: summer habitat is extensive; summer habitat vegetation types are extremely productive of forbs that are preferred deer forage species; numerous "islands" of deer forage producing areas are usually present on moderately steep north slopes, where livestock use has been negligible. The greatest impact to deer summer habitat has occurred in the riparian type. Of 220 miles of riparian habitat surveyed to date, 46.8 percent was rated unsatisfactory in condition.

The mountain sage and Douglas-fir types are the most productive of palatable forbs. In lodgepole and spruce-fir types, the forb composition is greatest within meadows and riparian stream bottom habitat. Some subalpine whitebark pine sites within the spruce-fir type have extremely high forb production. Mountain sage habitat types used by summering mule deer are fairly well represented by the big sage/Idaho fescue habitat type described by Mueggler and Handl (USDA, FS 1974). An analysis of the mountain sage habitat type by BLM biologists in the Black Canyon AMP indicated an average forb canopy of 17.2 percent, varying from 7.5 percent to 30.1 percent (table 18A, Appendix 18).

In an extensive study of mule deer food habits in the western states in 1974, Kufeld, Wallmo, and Feddema (USDA, FS 1975) concluded that shrubs and trees averaged 74 percent of the diet, forbs 15 percent, and grasslike plants, 11 percent. During spring, shrubs-trees averaged 49 percent and grasses-forbs 25 to 26 percent. Reported use of grasses, sedges, and rushes was highest during

TABLE 2-13: MAJOR MULE DEER HABITAT AREAS AND POPULATIONS

Season	Habitat Area	MDFW&P Management Area	Allotments	Estimated Population[a] or Relative Density	Population Trend	BLM Habitat Per-centage	BLM Habitat Acreage
Summer-fall	Lima Peaks-Pine Top	300	0001, 0269, 0270, 0029, 0067, 0642	High	Up	7	8,000
Summer-fall	Tendoy Mountains	302	0039, 0193-0195, 0727, 0728, 0198, 0748-0749, 0108, 0149-0150, 0614, 0126, 0107, 0269, 0720, 0022, 0102, Rosy finch	High	Up	32	32,000
Summer-fall	Upper Sheep Creek-Medicine Lodge-Horse Prairie Creek	328	0042, 0158, 0741, 0101, 0108, 0621,0119, 0758, 0748-0749, 0757, 0132, 0019, 0016, 0156, 0155, 0654, 0130, 0020, 0004,0018, 0036, 0647, 0111, Badger	Moderate	Unknown	16	22,300
Summer-fall	Blacktail Ridge-Upper Sage Creek	325	0013, 0635, 0002-0003, 0727, 0728-0198, 0007-0008, 0038, 0027, 0136, 0624,0137, 0147, 0117, 0170, 0178, 0184, 0170, 0038, Irishman's, Retort, Checkerboard	High	Up	49	46,000
Summer-fall	Clover-Blacktail	325	0012, 0105, 0603, 0199, 0143, 0159, 0651, Steamboat Rock	High	Up	37	23,660
Summer-fall	Centennial Mountains	327	0040, 0730, 0152-0154, 0701, 0163, 0737, Sheep Mountain	Moderate	Unknown	71	52,000
Summer-fall	North Centennial Valley to U.S. Forest Service boundary	327	0651, 0649, 0740, 0152-0154, 0157, 0735-0736, 0708, 0172, 0733, 0641, 0164,0710, 0711, 0734	High	Unknown	39	16,000
Summer-fall	East Fork Blacktail-Robb-Ledford Creek to U.S. Forest Service boundary	324	0167, 0631, East Fork	High	Up	80	7,100
Summer-fall	Tobacco Root Mountains, all	320,333	0531, 0532, 0507, 0475, 0456, 0526,0489, 0484, 0669, 0521, 0399, 0447, 0404,0406, 0421, 0385, 0407	High	Up	11	25,500
Summer-fall	Highland Mountains, all	340	0237, 0268, 0324, 0661, 0307, 0313,0308-0309, 0303, 0316, 0505, 0658, 0370	High	Up	14	23,000
Summer-fall	McCartney Mountain	340	0327, 0314, 0315, 0323	Low	Unknown	72	7,040
Summer-fall	Sweetwater	326	0471, 0533, 0534, 0578, 0517, 0518-0519, 0516	High	Up	82	15,000
Summer-fall	Ruby Mountains	322	0530, 0498, 0469, 0479, 0680, Ruby Mountain unleased	High	Up	90	36,000

Winter-spring Crucial	Sheep-Little Sheep Creek	300	0720, 0699, 0700, 0022, 0109, 0187, 0622	355-420	Up	51	5,300
Winter-spring Crucial	North Tendoy Mountains (Bell Canyon-Kate Creek)	302	0007, 0008, 0193-0195, 0727, 0728, 0198, 0149, 0150, 0108, 0748-0749, Sourdough, Shrike	500-600	Static	51	17,700
Winter-spring Crucial	South Tendoy Mountains (Muddy-Sheep-Cabin Creek)	302	0032, 0699-0700, 0022, 0269, Deadwood Gulch	200-255	Static	73	10,700
Winter-spring	Upper Sheep-Medicine Lodge-Horse Prairie to U.S. Forest Service boundary	328	0019, 0755, 0132, Casey	25-50	Unknown	20	600
Winter-spring Crucial	Clark Canyon-Gallagher-Small Horn Creek	325	0002-0003, 0013, 0114, 0722, 0188, 0635	75-100	Up	55	5,000
Winter-spring Crucial	Maurer-Ashbough-Spring Gulch-Red Butte	325	0002-0003, 0727-0728-0198, 0007-0008, 0038, 0703, 0714, 0717, 0010, 0129, 0123, 0011, 0027, 0604, 0136	350-400	Up	61	53,100
Winter-spring Crucial	Jake Canyon-Price Canyon-Bull Heifer Creek	325	0147, 0138, 0625, 0137, 0136, 0624	525-550	Up	40	2,660
Winter-spring Crucial	Sage-Basin Creek	325	0012, 0143	260-300	Up	67	1,140
Winter-spring Crucial	Roberts Gulch-Red Butte-Bachelor Mountain	329	0031, 0017, 0725, 0726	160-180	Up	85	3,200
Winter-spring Crucial	Rocky Hills-Henneberry-Bannack	329	0759, 0015, 0030, 0148-0150, 0124, 0171, 0192, 0709, 0002, 0003, 0634, 0103, 0110, 0120, 0121, 0026, 0014, 0160, 0168, 0005, 0006	250-275	Up	68	22,900
Winter-spring	Point of Rocks-Mayflower to U.S. Forest Service boundary	333	0349, 0443, 0433, 0377, 0430, 0379	105-150	Static	28	7,100
Winter-spring	Pony-London Hills	333	0421, 0440, 0412, 0432, 0413, London Hills	50-75	Unknown	17	4,000
Winter-spring Crucial	Norwegian Gulch-Hot Springs Creek to U.S. Forest Service boundary	333	0404, 0405, 0407, 0393, 0416, 0406	75-100	Unknown	10	1,500
Winter-spring Crucial	Iron Rod - Cottonwood Creek	340	0324, 0268	180-200	Up	53	13,600
Winter-spring Crucial	Camp Creek - Soap Gulch - Selway Gulch	340	0308-0309, 0319, 0303, 0312, 0338, 0350	300-400	Up	72	8,300
Winter-spring	McCartney Mountain-Hogback	340	0327, 0315, 0510, 0459, 0670, 0659,0323	Low	Unknown	51	2,900

Table 2-13, page 3

Season	Habitat Area	MDFW&P Management Area	Allotments	Estimated Population[a] or Relative Density	Population Trend	BLM Habitat	
						Per-centage	Acreage
Winter-spring Crucial	Birch-Willow-Cherry-Trapper Creeks to U.S. Forest Service boundary	331	0182, 0333, 0329, 0317, 0328, 0322,0347, 0326, 0305, 0344, 0657, 0302, 0337,0320-0321, 0335, 0332, 0311	430-475	Static	65	18,000
Winter-spring Crucial	Dyce-Scudder	331	0028, 0037, 0751, 0034, 0191	210-260	Up	74	3,800
Winter-spring	Dexter Gulch-Frying Pan-Birch Creek	331	0197, 0182, 0333, 0131-0133, 0005-0006	50-75	Unknown	67	8,550
Winter-spring Crucial	Wall Creek-Madison River	323	0522, 0452, 0550, 0664, 0435, Armitage, Game Range	200-300	Static	8	1,500
Winter-spring Crucial	Greenhorn-Davey-Williams-Alder Creek to U.S. Forest Service boundary	322	0482, 0483, 0499, 0490, 0676, 0683,0497 0491, 0488, 0673, 0487	410-510	Up	36	9,300
Winter-spring Crucial	Johnny Gulch-Dry Hollow-Virginia City	322	0457, 0503	285-320	Up	10	1,600
Winter-spring Crucial	Ruby Mountains	322	0498, 0680, 0601, 0527, 0463, 0492,0667, 0665, 0479	455-555	Up	42	11,600
Winter-spring Crucial	Sweetwater Creek-Timber Hill	326	0678, 0469, 0677, 0516	165-185	Up	43	6,100
Winter-spring Crucial	Carter Creek-Axes Canyon-Moose Creek	326	0471, 0666, 0533, 0681, 0534, 0511,0513, 0498	475-575	Up	28	7,360
Winter-spring Crucial	Fletcher-Moore-Eightmile Creek	320	0428, 0669, 0504	350-425	Unknown	10	780
Winter-spring Crucial	Goodrich-Granite Creek-Mill Creek to U.S. Forest Service boundary	320	0348, 0501, 0478, 0477, 0481, 0502,0536, 0679, 0531-0532, 0507, 0484, 0489, 0671, 0468, 0526, 0488, 0331, 0306, 0236,0306, 0349, Bear Gulch	500-600	Up	32	16,000
Winter-spring Crucial	Charcoal Gulch-Ralston to U.S. Forest Service boundary	319	0340, 0318, 0339	700-900	Up	67	13,700
Winter	Grand Total	All	All	7,640-9,235		45.7	258,350
Summer-fall	Grand Total	All	All	Unknown		28.5	313,600

SOURCE: BLM, 1979.

a. Estimates were made from aerial census figures from both the Bureau of Land Management and the Montana Department of Fish, Wildlife and Parks, and with the use of professional judgment based on several years' data.

TABLE 2-14

WILDLIFE HABITAT ON PUBLIC LAND

Species	Season	Total Acres/Miles of BLM Land	Condition		
			Percentage Satisfactory[a]	Percentage Unsatisfactory Because of Range Condition	Percentage Unsatisfactory Because of Other Conflicts
Mule deer	Summer-fall	364,850 acres	67	27	6
	Winter-spring	258,350 acres	21	58	21
Elk	Summer-fall	125,980 acres	56	43	1
	Winter	150,435 acres	47	45	8
Antelope	Summer-fall	374,100 acres	29	64	7
	Winter	107,360 acres	74	19	7
Bighorn	Yearlong	32,840 acres	66	32	2
Moose	Yearlong	44,000			
	Winter	5,280 acres	67	33	0
Grizzly	Yearlong	46,870 acres	66	0	34
Waterfowl	Summer	13,300 acres	41	59	0
Sage grouse	Breeding	68,470 acres	28	72	0
	Nonbreeding (sum. & win.)	532,460 acres	37	63	0
Stream (fishery)		155 miles	52	48	0[b]
(nonfishery)		± 300 miles	45	55	0[b]

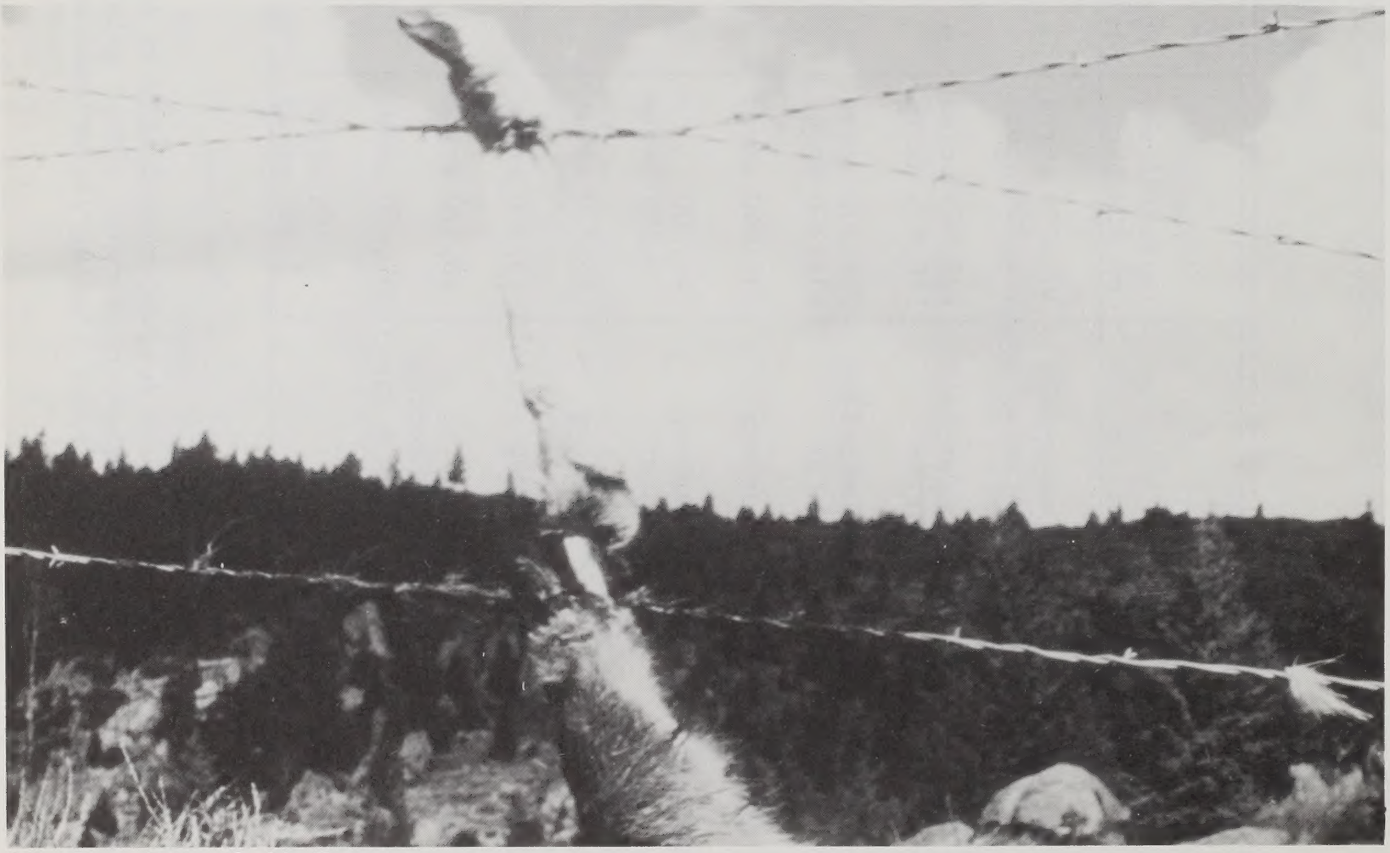
SOURCE: BLM, 1979.

a. These figures were derived principally by transposing range condition overlays over wildlife habitat overlays and computing the unsatisfactory acreage with a polar planimeter. Fair range condition was rated unsatisfactory for all species except sage grouse (during winter) and antelope. For those species, other factors such as browse condition were considered.

b. Other conflicts are known to occur, but a lack of data precludes quantification. Data shown for satisfactory condition and for "unsatisfactory because of range condition" were derived from riparian surveys on a 220-mile sample

10. Mule Deer on Public Land

BLM-managed land provides important winter habitats for mule deer, as well as for elk, antelope, and moose.



11. Deer Entangled in Fence

Fences not designed to accommodate big game movement may cause entanglement mortality and restrict normal movements. The principal fencing alterations proposed are adjustments in wire spacing.

spring, ranging from 4 to 64 percent. In summer, the average shrub-tree consumption remained at 49 percent, while forb consumption increased to an average of 46 percent and that of grasslike plants dropped to 3 percent. In fall, the use of shrubs-trees rose to 60 percent, forb use declined to 30 percent, and grasslike species consumption increased to 9 percent.

Southwestern Montana studies show summer forb use to be generally much higher; 81 to 83 percent (Schwartzkoph 1973; Hamlin 1974). Schwartzkoph found 35 percent use of grasses in a winter study in the Bridger Mountains; however, a mild and relatively snow-free winter that year had resulted in earlier than normal greenup. Studies by South (1957) and Constan (1972) indicate that winter browse use averaged 62 percent to 90 percent. Mahogany is preferred when it is present. Once available mahogany is consumed, deer rely principally upon sagebrush, followed by Douglas' rabbitbrush, horsebrush, and common juniper. On habitats lacking mahogany, sagebrush is the staple, and Douglas' rabbitbrush the principal mixer. A variety of other species may be periodically important, such as fringed sage, lupine, chokecherry (only locally abundant), Rocky Mountain juniper, Douglas-fir, currant, buffaloberry, willow, aspen, dogwood, "cool season" grasses during greenup, and rubber rabbitbrush (normally not preferred).

The presence of a variety of early-growing grasses and forbs on or adjacent to winter habitats for spring use appears to be a possible significant limiting factor for mule deer, which is largely attributable to livestock grazing-induced habitat changes. Mule deer may also be limited by the availability of frost-hardy green forbs close to adequate security cover during the hunting season. Mule deer have been observed to favor conifer edges near moist south slopes during the fall. Riparian habitats could be especially valuable in the fall. Extensive livestock use of forbs on these areas could be detrimental to deer. Mackie (1979) has also suggested that spring and fall habitat deficiencies may be limiting factors in western Montana.

Out of an estimated 2,200 miles of existing fencing on deer habitats, about 10 percent is known to constitute barriers to normal deer movements, especially the movement of fawns.

Elk

Elk are abundant in the study area. Table 2-15 lists the winter population estimates for major habitat areas. Public lands provide primarily winter and spring habitats. It is estimated that 5,180 to 6,190 elk winter on habitat areas that average 34 percent public land. Between 12 percent and 73 percent of each area is public land (see map supplement). Estimates were derived from aerial survey data collected by the MDFWP and the BLM. Ten to 15 percent was added to actual recent counts where elk winter ranges have extensive conifer cover. Population estimates are intended to be utilized only in general terms to reflect differences in habitat areas and to place public lands in perspective as to wildlife values. Estimates are probably conservative.

Public lands provide significant elk summer range in the North Gravelly Range, Blacktail Ridge, the East Fork of Blacktail Creek, the Highland Mountains, the Centennial Mountains, and the Tendoy Mountains. An estimated 295 to 370 elk are known to reside during summer, or on a yearlong basis, on Blacktail Ridge, the Tendoy Mountains, and McCartney Mountain combined. These areas average 43 percent public land (see table 2-15 and the Surface Ownership map in the map supplement). The populations of other elk summer ranges are not known, but they probably contain at least 300 to 500 additional elk.

Important elk calving habitats for 641 to 910 elk have been documented thus far. Known elk calving habitats that have not been evaluated include upper Granite Creek drainage near Virginia City and the west side of the Medicine Lodge drainage. Calving habitat, both confirmed and suspected, averages 50.1 percent public land, or 17,285 acres. Elk use during calving season on public lands probably exceeds summer use.

Elk population trends are generally static to slightly up on BLM winter habitats. Notable exceptions include Dyce-Badger-Dutchman, Greenhorn-Barton-Davey, Haypress-Morgan-Cherry, Fletcher-Moore, Roberts-Pointer-Taylor-Madigan, and the North Centennial Valley areas (see table 2-15 and the Elk Habitat map in the map supplement). Use by free-roaming horses and livestock grazing practices are believed to be responsible for declines on the Greenhorn-Barton-Davey and Roberts-Painter-Taylor-Madigan areas. Snowmobile disturbance is believed responsible for declining elk use in Dyce-Badger-Dutchman and North Centennial Valley. Both snowmobile disturbance and intensive livestock grazing are recognized problems on the Fletcher-Moore habitat area. The Tobacco Root Mountain (MDFWP area 320) elk herd has been steadily increasing in recent years in response to reduced

TABLE 2-15: MAJOR ELK HABITAT AREAS AND POPULATIONS

Season	Habitat Area	MDFW&P Management Area	Allotments	Estimated[a] Population or Relative Density	Population Trend	BLM Habitat	
						Per- centage	Acreage
Spring-calving Crucial	Upper Granite Creek	320	0526, 0486, 0475	135-150	Unknown	22	1,000
Spring-calving Crucial	Standard - Wall Creek	323	0540, 0435	50-?	Unknown	20	1,600
Spring-calving Crucial	Divide - Black Canyon - Bear Creek	328	0130, 0020, 0004, 0018-0036	61-80	Unknown	53	1,485
Spring-calving Crucial	Shesser Creek	329	0145, 0627, 0645	25-35	Unknown	51	1,500
Spring-calving Crucial	Blacktail Ridge - Sheep Creek	325	0013, 0117, 0178, 0002-0003	170-195	Static	30	1,000
Spring-calving Crucial	North Centennial Valley	327	0152-0154, 0734, 0736, 0172	200-400	Unknown	43	4,100
Summer-fall	Baldy Mountain - Horse Hill to U.S. Forest Service boundary	322	0497-0490, 0485	Moderate	Unknown	96	7,800
Summer-fall	Ruby Mountains	322	0469, 0530, 0479, Ruby Mountains	15-30	Static	80	18,400
Summer-fall	Humbug Spires - Camp Creek to U.S. Forest Service boundary	340	0316, 0303, 0308-0309, 0313, 0658, 0506, 0668	Low	Unknown	78	18,100
Summer-fall	Tendoy Mountains	302	0039, 0748-0749, 0727-0728-0198, 0193, 0195, 0149-0150, 0108, 0757	70-100	Static	16	4,740
Summer-fall	Medicine Lodge-Upper Horse Prairie to U.S. Forest Service boundary	328	0101-0108, 0119, 0748-0749, 0132, 0130, 0020, 0004, 0018, 0036	Moderate	Unknown	65	8,200
Summer-fall	Blacktail Ridge	325	0002-0003, 0013, 0117, 0184, 0170,0178, 0147, 0136, 0624, 0604, 0138, Retort Mountain, Irishman's	195-210	Static	64	16,000
Summer-fall	Chris Cabin - West Fork Blacktail Creek	325	0012, 0603, Steamboat Rock	15-30	Static	19	1,260
Summer-fall	East Fork Blacktail Creek to U.S. Forest Service boundary	324	0167	Moderate	Unknown	53	3,900
Summer-fall	Centennial Mountains	327	0040, 0730, 0152-0154, 0737, 0163, Sheep Mountain	Low-moderate	Unknown	56	44,700

Winter Crucial	Greenhorn-Barton-Davey Creek to U.S. Forest Service boundary	322	0482-0483, 0499, 0490, 0497	150-160	Down	68	9,500
Winter	Wigwam Creek-Haypress	322	0473, Wigwam	70-80	Unknown	16	640
Winter	Haypress-Morgan-Cherry Creek to U.S. Forest Service boundary	322	0503, 0457, 0485	100-150	Up	24	920
Winter Crucial	Wall Creek Game Range	323	Unleased	600-700	Static	5	500
Winter Crucial	Indian-Papoose Creek to U.S. Forest Service boundary	360	0476, 0543, 0460	550-650	Static	29	1,440
Winter Crucial	Point of Rocks-Bone Basin-Shaw Basin	333	0236, 0306, 0349, 0443, 0377, 0430,0433	150-165	Up	28	4,500
Winter Crucial	North Willow-South Boulder - London Hills	333	0378, 0432, 0415, 0385, 0421, 0662,0412, 0440, 0413, Antelope Creek	150-170	Up	5	200
Winter Crucial	Granite-Ramshorn-Mill Creek	320	0536, 0679, 0531-0532, 0507, 0475, 0671, 0526, 0468	135-150	Static	38	7,700
Winter Crucial	Goodrich-Georgia Gulch-Dry Boulder	320	0348, 0331, 0478, 0501, 0502, 0481, Bear Gulch	60-80	Static	53	4,500
Winter Crucial	North Meadow-North Willow Creek	320	0412, 0440, 0438, 0404, 0447, 0406,0407, 0400	175-225	Up	17	3,500
Winter	Fletcher-Moore Creek	320	0399, 0428, 0504, 0669, 0521, 0484,0489, 0547	40-60	Down	12	1,350
Winter Crucial	Steel's Pass-Camp Creek-Soap Gulch-Selway Gulch	340	0324, 0308-0309, 0303, 0661	150-180	Up	56	8,600
Winter Crucial	Fleecer-Charcoal-Dickie Hills	319	0318, 0340, Charcoal Mountain	600-650	Up	55	9,300
Winter	Nez Perce-Shepherd Mountain to U.S. Forest Service boundary	331	0342, 0301, 0311, Goat Mountain	30-40	Unknown	37	770
Winter Crucial	Tendoy Mountains-Muddy Creek	302	0039, 0699-0700, 0749, 0748, 0198-0727-0728, 0193-0195	70-100	Static	68	15,225
Winter	Lima Peaks to U.S. Forest Service boundary	300	0270, 0029, 0642	220-310	Up	48	2,000
Winter Crucial	Roberts Gulch-Painter Creek-Taylor Ridge - Madigan Gulch	329	0725-0726, 0629, 0194, 0030, 0031, 0148-0150, 0015	95-125	Down	55	4,700
Winter Crucial	Dyce Creek-Badger Pass-Dutchman Mountain	331,329	0028, 0037, 0005-0006, 0122, 0182, 0333, 0197	145-155	Down	73	7,065

TABLE 2-15,page 3

Season	Habitat Area	MDFW&P Management Area	Allotments	Estimated Population or Relative Density[a]	Population Trend	BLM Habitat	
						Per-centage	Acreage
Winter Crucial	Blacktail Ridge	325	0002-0003, 0013, 0147	135-140	Static	44	3,200
Winter Crucial	Chris Cabin - Basin Creek	325	0143, 0012	150-225	Up	23	820
Winter Crucial	East Fork Blacktail - Robb Creek - Ledford Creek to U.S. Forest Service boundary	324	0167, 0631	1,200-1,300	Up	7	3,640
Winter	Wolverine - Mohican - Piute Creek to U.S. Forest Service boundary	324	0651, 0649, 0740, 0152-0154, 0157	25-50	Static	32	9,300
Winter	North Centennial Valley	327	0152-0154, 0707, 0708, 0735, 0736, 0172, 0641, 0733, 0734	100-200	Down	37	13,000
Winter	South Centennial Valley	327	0040	30-50	Up	14	1,300
Winter	Warm Springs-Woody Creek to U.S. Forest Service boundary	332	Warm Springs	50-75	Unknown	10	250
Yearlong	McCartney Mountain	340	0323, 0327, 0314	55-65	Static	72	7,300
Winter Grand Total				5,180-6,190		34	113,950
Summer Grand Total				600-900		60	116,000
Spring-calving Grand Total				641-910+		43	18,885

SOURCE: BLM, 1979.

[a] Estimates were made from aerial census figures from both the Bureau of Land Management and the Montana Department of Fish, Wildlife, and Parks, and with the use of professional judgment based on several years' data.

either-sex harvest quotas implemented by the MDFWP.

The Snowcrest Range (MDFWP area 324) elk herd has increased substantially. The MDFWP acquired the 11,261-acre Blacktail Game Range on the East Fork of Blacktail Creek in 1972. It then built up the wintering elk herd, which had numbered approximately 500, to a new level of about 1,000. Most of the winter use occurs on the game range; however, late fall and early winter use is substantial on adjoining public lands. Heavy fall snows often trigger elk movements to lower elevations. The public lands serve a vital function by providing timbered habitat with high security cover value at intermediate elevations, between summer habitat and the "open" (timberless) winter habitat on the game range. Elk calve on the public lands adjoining the game range in significant numbers during late springs, and they winter on the public lands during mild winters. Although all the public land in this area is intensively used by elk for calving and fall security, public land provides only 7 percent of the primary winter range.

The Fleecer Mountain (MDFWP area 319) elk herd is fairly static in its long-term trend. The herd has been characterized by significant short-term fluctuation since 1910, when Montana's first transplant of Yellowstone National Park elk took place here. The MDFWP acquired 6,425 acres of private land in 1962 and established the Fleecer Game Range. Since that time, the area 319 elk herd has been fairly stable. Early snow during the 1973 hunting season resulted in an excessive harvest. Since then, restrictive either-sex quotas by the MDFWP have resulted in recovery to about the 1973 level of 800 to 1,000 elk.

About two-thirds of the herd winter in the southern portion of area 319. Public lands comprise 55 percent of their winter habitat, including a 1,866-acre tract devoted exclusively to big game use. Area 319 may be the most important elk hunting area in southwestern Montana.

Elk production is generally excellent, as indicated by ratios for the Blacktail and Gravelly ranges of 53 to 68 calves per 100 cows (MDFWP progress reports). The Blacktail Ridge area had 50 calves per 100 cows in 1978, which is excellent.

Public lands comprising elk winter habitat total 150,435 acres, of which 45 percent is rated unsatisfactory because of range condition (table 2-14). Winter habitats are principally well-developed bunchgrass types, with varying quantities of conifer and brush cover. A few minor winter habitats include extensive mountain shrub and Douglas-fir types. Riparian habitat types are present to some degree on all winter habitats. Elk also make some use of the wet meadow type. Most winter ranges are the Idaho fescue/bluebunch wheatgrass habitat type, as described by Mueggler and Handl (USDA, FS 1974)

Table 18B, Appendix 18, characterizes vegetation parameters on the Greenhorn-Barton-Davey Creek elk winter range, which is typical of winter ranges in the study area within the Douglas-fir and mountain sage types, particularly drier south slopes and ridgetops. Major forage species of high value to elk include bluebunch wheatgrass and Idaho fescue. Other forage species of lesser value are junegrass, bluegrasses, needle-and-thread, and sedges. Some forb species of high to moderate value are lupine, vetches, buckwheat, and aster.

A few elk winter habitats encompass higher elevation sites and/or north slopes, which appear to be principally in the rough fescue and big sage series described by Mueggler and Handl (USDA, FS 1974), particularly the big sage/bluebunch wheatgrass habitat type. On these areas, rough fescue is generally of trace occurrence, but slender wheatgrass, bluebunch wheatgrass, Idaho fescue, Columbia needlegrass, basin wildrye, bluegrasses, mountain brome, and thickspike wheatgrass are locally important.

Livestock grazing has caused significant impacts on most elk winter ranges, with significant losses occurring in grass and forb composition and in the total vegetative biomass. In some areas, browse species such as big sagebrush have increased in response to livestock use. Table 18B, Appendix 18, documents vegetative changes induced by poor livestock grazing practices and feral horse use on the Greenhorn-Barton-Davey Creek elk winter range.

Public lands comprising elk summer habitat total 125,980 acres, of which 43 percent is rated unsatisfactory because of "disturbance competition" (avoidance reaction) with livestock or because of stock-induced habitat deficiencies.

Summer habitats fall within the broad type categories of Douglas-fir, lodgepole pine, spruce-fir, and whitebark pine. Within these broad types are dispersed wet meadow, riparian, grassland-park, mountain sage, broken-park, and aspen sites. Rouse (1957), Lonner (1978), and Eustace (1967) describe elk summer habitats for this area.

Douglas-fir types are generally too xeric for high quality summer habitat sunless wet meadow or riparian types are present. The Tendoy Mountains, Ruby Range, Blacktail Ridge, Humbug-Camp Creek, Medicine Lodge-Horse Prairie, and Chris Cabin-Blacktail Creek areas are predominantly of this type. Wet areas assume critical importance for elk in Douglas-fir types. Lonner (1978) observed the importance of wetness as an influence on elk summer use in Long Tom Creek on the Beaverhead National Forest.

Lodgepole pine and spruce-fir types are generally intermixed, with lodgepole being a dominant seral species. The alpine fir/whortleberry and alpine fir/pinegrass habitat types described by Pfister et al. (USDA, FS 1977b) typify most elk summer habitats in the area. Engelmann spruce dominates on wetter sites within these types. Forb compositions are quite high in wet and/or open canopy sites. In meadows and marshy areas, sedges predominate. Shrub components are generally minor. Riparian areas are dominated by conifer overstory at higher elevations, but the composition changes quickly to broadleaf species mixtures in foothill areas.

Elk summer habitats in the Centennial Mountains, Baldy Mountain-Horse Hill, East Fork Blacktail, and Tendoy Mountain summer ranges are generally free of major conflicts. Summer habitats in Blacktail Ridge, Medicine Lodge-Upper Horse Prairie, and the Ruby Mountain areas are impaired by summer livestock use, which diverts elk from preferred wet habitats. Many areas, such as Greenhorn-Barton-Davey, are suitable for elk use, but are not currently used by summering elk because of annual intensive livestock use in wet areas; consequently, these areas are not shown as summer habitats in table 2-15.

In the Ruby Range, livestock use is so intensive and widespread on moist forb-producing areas that the yearlong elk population of 15 to 20 animals represents only about 15 percent of its estimated potential. The Blacktail Ridge elk population is stabilized at about 195 to 210 elk. The limiting factor is availability of wet habitat types, which provide succulent forage during summer and fall. Wet areas are limited principally to the Gallagher Mountain (0013) and Clark Canyon (0002 and 0003) allotments, which are grazed by stock each summer and fall under existing grazing systems; therefore, elk are largely diverted from these areas each year. With availability of additional summer-fall habitat, this herd could probably be increased to about 300 head. Elk potential on other summer habitats has not been assessed.

Calving habitat is characterized by broken park, conifer edge, or mixed conifer and aspen stands. A typical calving habitat is a conifer or conifer-aspen edge with an adjoining sage-grass stand on a south slope. The conifer-aspen stand provides security for the cow, and the calf beds nearby in the cover of the sage-grass stand (BLM files). Reichelt (1973) concluded that sagebrush was an important component of calving habitat on the West Fork of the Madison River. This was also the conclusion of Johnson (1951) and Altmann (1952), who studied nearby areas. Tall herbaceous vegetation probably also complements the value of the sage stand as security and thermal cover. Reichelt found calves were bedded an average of 233 feet from the timbered edge.

Studies of elk food habits by Rouse (1957) in the Gravelly Mountains revealed an elk summer diet of 91 to 95 percent forbs, I to 3 percent browse, and 2 to 6 percent grasses and sedges. During fall, forb use dropped to 14 to 34 percent, browse use remained at 3 percent, and grass-sedge use increased to between 62 and 80 percent. Stevens (MDF&G 1965) found an elk summer diet of 76 percent forbs and only 16 percent grasses in the Crow Creek drainage of the Elkhorn Mountains, which is similar to habitat in the study area. His data also showed a shift to grasses during fall.

Cattle on the same area consumed 75 percent grasses and 24 percent forbs, while domestic sheep consumed 70 percent forbs during summer. A study of elk winter range on the same area by Gordon (MDF&G 1968b) documented significant overlap between the summer diet of cattle (62 percent grasses) and the winter diet of elk (73 percent grasses). He concluded that both ungulates selected bluebunch wheatgrass, that competition did occur on selected sites and was a potential problem on other sites, and that it could be influenced by salt distributed for cattle. BLM biologists have documented selectivity by cattle for bluebunch wheatgrass on elk winter ranges in the study area.

Pronghorn Antelope

Antelope are very abundant in the valley and foothill portions of the study area. Public lands provide major habitats for antelope during all seasons of the year. It is estimated that 6,205 to

7,115 antelope are found in summer or throughout the year on habitat areas that average 30.8 percent public land. An estimated 2,795 to 3,480 antelope winter on habitat areas that average 48.0 percent public land (see map supplement).

Table 2-16 lists population estimates for major habitat areas that include public lands. Estimates were derived principally from aerial survey data collected by the MDFWP, with some supplemental data collected by BLM biologists. Estimates are probably conservative; they are intended to be utilized in general terms to reflect relative values of different habitat areas and to place public lands in perspective as to wildlife values.

The largest antelope herd in western Montana (MDFWP area 330) summers mainly in the Centennial Valley (27 percent public land) and migrates to the Sage-Basin Creek (61 percent public land) and Red Butte-Lima-Snowline (25 percent public land) areas to winter (see table 2-16). In 1964, the MDFWP counted 3,546 antelope in this management area (MDFWP progress report). Numbers dropped sharply thereafter, apparently in response to heavy harvest. Winter habitat was documented as being in poor condition. This herd currently numbers 1,400 to 1,600 animals.

The Madison Valley supports a very large antelope population; however, only 4 percent of that habitat is public land.

Upper Horse Prairie, Sheep Creek Basin, and Medicine Lodge Creek (MDFWP management area 300) supports an estimated 872 to 990 antelope. This is down from a 1964 survey of 1,243 antelope.

MDFWP management area 329 includes two major antelope herds. The largest numbers 500 to 635 animals, which summer largely on private lands in Upper Horse Prairie and winter on the Rawhide-Badger Gulch-Sagebrush-Buffalo Creek area, which is 67 percent public land. The second herd, which inhabits the Rocky Hills area, numbers 111 to 140 animals. During winter, this smaller herd moves only a short distance to the Pipe Organ-Henneberry area, which is 48 percent public land.

Other antelope populations are smaller and largely nonmigratory, and they inhabit areas ranging from 1 to 88 percent public land. Collectively, these smaller populations are important to hunters in southwestern Montana.

Antelope numbers appear to be static or slightly up over the past five-year period; however, the long-term trend appears to be downward when compared to 1963-1964 MDFWP survey data. Fawn production varies significantly between management areas. The Centennial Valley had good fawn production during three years in the 1974 to 1977 period, ranging from 81 to 95 fawns per 100 does. Production was poor in 1975. In contrast, fawn production in the Horse Prairie and Medicine Lodge-Sheep Creek areas (MDFWP management areas 300 and 329) was very poor to fair during the same period. Horse Prairie production averaged 51.2 fawns, varying from 30 to 66 fawns per 100 does, from 1973 to 1977. Medicine Lodge-Sheep Creek averaged only 56.4 fawns, varying from 35 to 68 during the same period. The difference in fawn production is probably attributable to differences in habitat quality. The Centennial Valley provides high quality summer habitat with an abundance of succulent forbs, and major winter habitats in the Sage Creek and Lima areas are in satisfactory condition. In the Horse Prairie and Medicine Lodge-Sheep Creek areas, the presence of barrier fences and the degradation of summer habitat quality through livestock grazing practices are recognized as existing problems.

Public lands comprising antelope winter habitat total 107,360 acres, of which 74 percent is rated in satisfactory condition. Major antelope winter habitats are characterized by fairly open sagebrush types intermixed with grassland types. Excessively dense sagebrush sites and sparse sagebrush sites are not preferred winter habitats for major antelope populations in the study area.

The big sagebrush/bluebunch wheatgrass habitat types described by Mueggler and Handl (USDA, FS 1974) characterize winter habitats on the Sage-Basin Creek and Rawhide-Badger-Sagebrush-Buffalo Creek areas. The bluebunch wheatgrass/blue grama habitat described in the same report is commonly interspersed within the big sage type, providing a "grassland" aspect on ridgetops, benches, and shallow-soiled upland sites. This interspersion of shrubland and grassland types is important to the forage diversity aspect of winter-spring antelope habitat. The grassland types provide early greenup of grasses and forbs for antelope spring use.

In the big sagebrush/bluebunch wheatgrass habitat type, shrubs make up 12 to 20 percent canopy coverage, or 25 to 30 percent of the species composition.

Livestock grazing practices have significantly

TABLE 2-16: MAJOR ANTELOPE HABITAT AREAS AND POPULATIONS

Season	Habitat Area	MDFW&P Management Area	Allotments	Estimated Population[a] or Relative Density	Population Trend	BLM Habitat	
						Per-centage	Acreage
Winter	Alkali Creek-Cabin Creek	300	0009, 0269, 0704, 0158, 0115, 0102, 0107	190-?	Up	47	5,800
Winter	Bell Canyon-Limekiln Canyon	300	0007-0008, 0193-0195, 0746	120-150	Static	8	160
Winter	Spring Creek-Horse Prairie Creek	300	0015, 0122, 0760, 0723, 0030, 0033, 0031,0608, 0017, 0762	100-150	Unknown	40	1,800
Winter	Little Sheep Creek	301	0622, 0187, 0109	250-300	Static	9	900
Winter	Taylor Creek	310	0745, 0122	50-60	Up	88	2,200
Winter	Ermont	310	0005, 0006	60-80	Up	85	3,000
Winter	Timber Butte-McDowell Spring	310	0005, 0006, 0162	50-70	Up	52	3,300
Winter	Idaho Creek-Greenhorn	321	0493, 0676	50-60	Up	7	1,000
Winter	Melrose	341	0308, 0309, Triangle	40-50	Static	15	320
Winter	Block Mountain-Nez Perce-Rochester Creek-Cottonwood Creek	341	0327, 0315, 0314, 0323, 0354, 0353, 0345	100-130	Static	35	7,500
Winter	Rawhide Creek-Badger Gulch-Sagebrush-Buffalo	329	0122, 0015, 0723, 0030, 0033, 0031, 0608,0762, 0017, Flying N	500-635	Up	67	17,500
Winter	Pipe Organ-Henneberry	329	0110, 0103	50-75	Up	48	1,000
Winter	Sage-Basin Creek	330	0136, 0624, 0604, 0129, 0012	900-1,000	Up	61	52,500
Winter	Red Butte-Lima-Snowline	330	0630, 0620, 0615, 0123, 0011, 0175, 0177,0029	200-300	Up	28	2,800
Winter	Maurer-Clark	330	0729, 0002, 0003	30-40	Up	24	2,000
Winter	Lovell's Gulch	330	0013, 0722, 0188, 0605, 0712	25-50	Up	71	4,400
Winter	Lima Reservoir	330	0151	50-100	Up	22	640
Summer	Muddy Creek	300	0039, 0699-0700	20-30	Unknown	76	13,000
Summer	East Tendoy To Garfield	300	0269, 0009, 0704, 0158, 0042, 0115, 0158,0102, 0741, 0652, 0107, 0101-0108, 0621, 0126, 0127, 0119, 0748-0749, 0653, 0108-0757, 0615, 0628, 0619, 0149-0150	120-150	Static	33	10,200

Summer	Medicine Lodge-Barrett-Rape Creek-Bannock Pass	300	0032, 0021-0761, 0754, 0019, 0654, 0016, 0156, 0155, 0753	375-400	Up	44	39,700
Summer	Horse Prairie west of highway to Bannock Pass	300	0025, 0004, 0112, 0035, 0020, 0654,0130, 0647	115-130	Static	38	8,600
Summer	Sheep Creek Basin	300	0001, 0269, 0009, 0704, 0041, 0699, 0700,0635, 0611, 0042, 0158, 0115, 0741, 0652, 0102,0107, 0101, 0108, 0621, 0127, 0126, 0119, 0758, Rosy Finch	360-400	Up	42	13,000
Summer	Pinetop Hill-Truax Creek-Chute Canyon	301	0642, 0029, 0719, 0607, 0615	280-320	Static	15	4,900
Summer	Dyce Creek - Taylor Creek - Hangman's Gulch	310	0015, 0122, 0619, 0745, 0034, 0724, 0609, 0037	50-75	Up	53	12,800
Summer	Rocky Hills	329	0148, 0150, 0124, 0171, 0192, 0026, 0030,0015	115-130	Up	57	38,000
Summer	Horse Prairie-Buffalo Creek	329	0617, 0030, 0031, 0017, 0725, 0726, 0646,0144, 0754, 0019, 0122, Flying N, Painter Creek	600-700	Up	14	11,000
Summer	Centennial Valley to county road at Lima	330	0029, 0040, 0125, 0151-0154, 0157, 0159, 0162, 0164, 0169, 0172, 0176, 0177, 0179, 0180,0183, 0185, 0607, 0636, 0610, 0650, 0648, 0633,0701, 0707, 0708, 0710, 0711, 0713, 0719, 0730-0738, 0747, Lima, Shepherd's Cross, Monida, Corral Creek, Ruddy Duck, Sheep Mountain	1,400-1,600	Up	27	34,000
Summer and yearlong	Antelope Flat-Ashbough-Armstead	330	0143, 0175, 0123, 0129, 0604, 0136, 0027,0010, 0717, 0714, 0703, 0038, 0007, 0008, Jackrabbit	110-140	Up	70	45,100
Summer and	Gallagher-Small Horn-Jake Canyon-Red Canyon-Teddy Creek-Basin Creek	330	0002, 0003, 0013, 0635, 0114, 0722, 0188,0625, 0113, 0105, 0012, 0138, Steamboat Rock	200-250	Up	36	21,600
Summer	Rochester - McCartney Creek	341	0324, 0345, 0323, 0308, 0309, 0355, 0356,0307, 0661	80-100	Static	58	42,000
Yearlong	Hogback - Biltmore	341	0486, 0459, 0670, 0510, 0464, 0495,0458, 0542, 0395, 0455, 0537	60-80	Static	12	4,200
Yearlong	Silver Star - Cherry Creek	341	0370, 0371, 0268	80-90	Static	14	1,400
Yearlong	Apex	310	0317, 0304, 0329, 0182, 0333, 0670	25-50	Up	8	1,900
Yearlong	Burns Mountain - Timber Butte	310	0014, 0160, 0026, 0632, 0120, 0121, 0168,0005, 0006, 0015	50-70	Unknown	78	20,300
Yearlong	Ermont - Argenta - Frying Pan	310	0706, 0640, 0118, 0161, 0135, 0633, 0134,0131, 0133, 0122, 0333, 0005, 0006, 0197	100-125	Up	53	23,200
Yearlong	Sheridan - Point of Rocks	320	0331, 0306, 0349	450-500	Up	4	1,500

TABLE 2-16, page 3

Season	Habitat Area	MDFW&P Management Area	Allotments	Estimated[a] Population or Relative Density	Population Trend	BLM Habitat	
						Per-centage	Acreage
Yearlong and summer	Crazy Springs-Rock Creek-Dry Hollow-Sweetwater-East Fork Blacktail	321	0471, 0666, 0656, 0512, 0516, 0677, 0469, 0482, 0483, 0665	415-475	Up	19	18,700
Yearlong	Madison Valley	360	0550, 0522, 0452, 0529, 0504, 0539, 0461,0474, 0524, 0414, 0467, 0472, 0465, 0410, 0485,0428, 0547, 0422, 0663, 0393, 0417, 0416, 0500,0457, 0473, 0444	1,200-1,300	Static	4	9,000
Winter	Grand Total	All	All	2,795-3,480		48	107,060
Summer and yearlong	Grand Total	All	All	6,205-7,115		30.8	374,100

SOURCE: BLM, 1979.

a. Estimates were made from aerial census figures from both the Bureau of Land Management and the Montana Department of Fish, Wildlife, and Parks, and with the use of professional judgment based on several years' data.

affected antelope winter-spring ranges, principally through losses of grass and forb compositions and some nominal increase in Wyoming and mountain sage. Spring habitat quality has probably been impaired the most. Sheep were grazed until recent years on the Sage-Basin Creek area, and BLM studies in 1974 documented high dead crown (22.9 percent) and decadence (46.3 percent) in sage stands. Sheep were known to make heavy use of the sage during late fall and early winter. In the Badger Gulch area, BLM studies in 1976 documented an average sage dead crown of 32.2 percent, with 55 percent of plants being rated as decadent. In this case, a sheep-tight fence precluded normal antelope dispersal and movement, resulting in excessive use of Wyoming sage by antelope.

Public lands comprising antelope summer-fall and yearlong habitats total 371,690 acres, of which only 29 percent is rated in satisfactory condition. Satisfactory condition on antelope summer habitat is generally characterized as sagebrush habitat types, with abundant herbaceous (forb) cover and available water. Good or excellent range conditions were assumed to represent satisfactory habitat condition for evaluating antelope summer habitat. The larger antelope populations are not sedentary, but migrate to summer habitats that provide an abundance of succulent forbs. The Centennial Valley, Sheep Creek Basin, and Upper Horse Prairie are examples of this kind of habitat.

Summer habitats are typically grassland type, containing less browse composition than winter habitats. The bluebunch wheatgrass and Idaho fescue series identified by Mueggler and Handl (USDA, FS 1974) describe summer habitats in general terms. Summer habitats are generally 6,500 feet in elevation or higher, and moisture conditions are optimal for forb production. Lower elevation areas used as summer habitats are generally characterized by the presence of subirrigated meadows or irrigated agricultural lands, particularly alfalfa crops. Antelope also utilize the mountain sage habitat types where sage canopies are not too dense. Table 18A, Appendix 18, documents the abundance of forbs in mountain sage types.

Livestock grazing practices have reduced forb compositions on some antelope summer ranges and precipitated varying increases in sagebrush canopies. On some areas, the herbaceous depletion has been severe enough to curtail antelope summer use. Sheep Creek Basin, the Medicine Lodge-Barrett-Rape Creek-Bannock Pass area, and the Horse Prairie-Buffalo Creek area are examples. It is possible that poor fawn production in these areas is a direct result of habitat degradation.

Fencing practices also have been detrimental to antelope. Partial fence inspections have disclosed 159 miles of fences on public lands that constitute barriers under various conditions. Widespread domestic sheep grazing in past decades has adversely affected antelope, since sheep-tight fences severely restrict or prevent normal antelope movements. Twenty-five to 30 miles of fences have been altered by the BLM on key habitat areas to facilitate antelope passage. One area on Rock Creek (allotment 0152) is uninhabited by antelope because of the presence of sheep-tight fences. This allotment comprises more than 5,000 acres of public land highly suited for antelope use and bordered by high-density antelope populations.

Past interseeding projects by the BLM in Horse Prairie have benefited antelope where dryland alfalfa and yellow sweet clover were introduced and livestock management practices were adequate to maintain these species. Artificial treatments of sagebrush have reduced the quantity and quality of antelope winter habitat in the Horse Prairie area. No current major winter habitats have sustained any artificial treatment. On some mountain sage sites, sage canopy has increased sufficiently to preclude antelope use. Extensive sage stands in excess of 30 percent canopy coverage probably restrict freedom of antelope movement.

Fawning generally occurs on summer habitats. Studies in Idaho (Fichter 1971) and in central Montana (MDF&G 1971) suggested that sagebrush was a vital component of fawn habitat. Pyrah concluded in central Montana studies that grasses, forbs, and browse were complementary as fawn cover, but that fawns might be more vulnerable to predation and adverse weather without sagebrush (MDF&G 1974). Herbaceous cover quality can be significantly altered by livestock grazing.

During summer, antelope eat principally forbs. In fall, forbs and browse are of equal importance. During winter, antelope rely almost totally upon browse, principally sagebrush and then rabbitbrush.

In central Montana, Cole (1956) found 66 percent forbs in the summer diet, and Becker (MDF&G) 1972b) found forbs formed over 90 percent of the

June-August diet. In southwestern Montana, Campbell (MDF&G 1970) found that forbs dominated the antelope diet during spring, summer, and fall, and grass use was insignificant. During fall, Cole, Becker, and Campbell all observed increases in the use of browse, particularly sagebrush. Winter food studies indicated almost total reliance upon browse, particularly sagebrush. Cole found big sage, fringed sage, and silver sage made up 93.1 percent of winter rumen samples.

Sundstrom, Hepworth, and Diem, in a 1973 Wyoming Fish and Game Commission report, suggested evolutionary ties between sagebrush species and antelope in North America and concluded that the zone of maximum antelope abundance coincided with Wyoming sage distribution. The report indicated that in the seven states that support 83 percent of all antelope (including Montana), browse composed 64 percent of the diet, of which 73 percent was sagebrush (Wyoming Fish and Game Commission 1973). Other important shrubs include Douglas' rabbitbrush, rubber rabbitbrush, winterfat, snakeweed, snowberry, and greasewood (Segerstrom 1977). Diverse forb species are utilized, but Montana alfalfa, sweet clover, goat's beard, vetches, and fringed sage are the major preferred species in Montana.

Bighorn Sheep and Mountain Goat

Mountain goats are present on public lands in small numbers in a few areas, including the Bear Trap Primitive Area, the Snowcrest Range, and the Beaverhead Mountains (see the map showing mountain goat habitat in the map supplement). Goats inhabit steep, mountainous terrain, and are not influenced by livestock grazing practices. They will not be discussed further.

Approximately 65 to 70 bighorn sheep inhabit the Camp Creek-Soap Gulch area; they are found on the Moose Creek (0303), Camp Creek (0308), and Gneiting allotments. Bighorns also are in the Maiden Rock area on the Glendale Common (0311), Maiden Rock (0312), Maiden Rock custodial, and Goat Mountain custodial allotments. This population was introduced from Sun River stock in 1967. Public lands make up 93 percent of the Camp Creek-Soap Gulch area and 73 percent of the Maiden Rock area (see the Bighorn Sheep Habitat map in the map supplement).

Bureau of Land Management biologists believe bighorn numbers were greater during the 1971 to 1973 period; there were perhaps 100 head or more in the Camp Creek-Soap Gulch area. In this area, security or escape habitat is the limiting factor, and superfluous roads and trails result in excessive disturbance by hunters in vehicles during the general hunting season. This disturbance has routed bighorn from otherwise suitable habitats in the Camp Creek-Soap Gulch area, but has resulted in establishment of new populations in the Highland Mountains and the Pioneer Mountains.

Recent lamb production of 52 to 63 lambs per 100 ewes is good, and it is indicative of good habitat quality and of a young (vigorous) population. Speculated downward trends in the Camp Creek-Soap Gulch herd are believed to be attributable to stress associated with vehicle disturbance, not to vegetative defiencies in the habitat.

Bighorn in the study area are nonmigratory, with no major seasonal movements. Slightly higher elevations and north slopes are favored during summer. BLM-managed lands total 32,840 acres, or about 90 percent of the habitat area outside of the Beaverhead National Forest. On the basis of range condition criteria, 32 percent of the habitat is in unsatisfactory condition (see table 2-6). In the opinion of BLM biologists, precipitous slopes and rocky areas inflated this figure, and the bighorn habitat quality is predominantly good to excellent, considering site capabilities.

Because of light stocking rates for livestock and prevailing steep slopes, livestock make very little use of bighorn habitats in the Camp Creek-Soap Gulch area. Habitat in the Maiden Rock area has been adversely affected by livestock grazing and mining activities.

About half of the bighorn habitat consists of the mahogany/bluebunch wheatgrass type (USDA, FS 1974), as described in the section on mule deer. The remainder is well-developed grassland with moderate to steep slopes in the Idaho fescue and bluebunch wheatgrass series described by Mueggler and Handl in the Forest Service report.

Bighorn were historically very abundant in the study area, as indicated by Granville (1925) and the Lewis and Clark Journals (Devoto 1953). BLM biologists have found bighorn skulls in the Centennial Mountains, Blacktail Ridge, Tendoy Mountains, and Wise River-Big Hole River areas. Most bighorn were extirpated by the 1880s (Conover 1977). Potential habitat for reintroduction is abundant, but suitability is impaired by existing roads, fences, and livestock operations. In some cases, elk winter use would be extremely competitive with bighorn. The best potential reintroduction areas are the Dixon Mountain-Big Sheep Creek area, Blacktail Ridge, and the Bear Trap Primitive Area. The Centennial Mountains Primitive Area is better suited to the establishment of mountain goat rather than bighorn. The U. S. Forest Service proposes an introduction in the East Pioneer Range. If the project is successful, some of these bighorn may winter on adjoining public lands.

Grasses and grasslike plants constitute most of the yearlong diet for bighorn. During fall and winter, browse use may increase to about 8 to 10 percent of the diet. Key grasses are bluebunch wheatgrass, Idaho fescue, and bluegrasses during the spring. Bighorn eat forbs such as milkvetch, pointloco, fringed sage, lupine, and phlox. Major shrubs used are curlleaf mahogany and Douglas' rabbitbrush. Some use of sagebrush probably also occurs. The bighorn diet overlaps significantly with that of cattle and wintering elk.

Moose

Moose are present in relatively low numbers in all the major river drainages of the study area. They are most numerous in the Centennial Mountains, where approximately 83 percent (44,000 acres) of moose habitat is in public ownership. This area provides yearlong habitat for moose. It adjoins the Red Rock Lakes National Wildlife Refuge, which maintains a wintering population of 50 to 80 moose (see the Moose Habitat map in the map supplement).

Public lands elsewhere in the study area provide mostly lower-elevation winter habitat, which is primarily in riparian areas. Public land in the Upper Big Hole valley is used intensively by moose, but numbers are not known. Moose populations in all areas are generally stable or decreasing slightly (MDFWP completion reports).

Moose rely on streamside habitat on a yearlong basis, whether on summer or winter range. Summer habitat is generally above 7,500 feet, where use is on subalpine meadows and willow bottoms. During fall and winter, moose generally move down to traditional wintering areas along drainages, where they utilize riparian habitat. However, this movement generally depends on snow depths, and some moose in the Centennial Valley, particularly older bulls, will remain on the lower limits of the summer range at 7,000 to 8,000 feet throughout the winter. Some moose also move from this area across the Continental Divide into Idaho to winter. Riparian habitat represents only about 10 percent of the total moose habitat on public land. Much of the remaining 90 percent is spruce-fir habitat type at higher elevations in the Centennial Mountains.

Lower elevation riparian habitat is characterized by species of woody vegetation such as willows, aspen, and dogwood (see the "Riparian Habitat" section of this chapter). These species are palatable to livestock as well as to big game. Moose rely heavily on riparian browse species during spring, summer, and fall and exclusively on them during the winter. Many of these riparian areas currently are heavily used by livestock, particularly during the hot season, July through September. The heavy livestock use is the primary cause for deterioration in the quality of this habitat. Currently, out of 49,300 acres of winter moose habitat on public lands, 33 percent has been judged to be in unsatisfactory condition because of grazing.

Woody species of browse, particularly willows, represent 95 to 100 percent of all forage used by moose throughout the year. Dorn (MDF&G 1969) reported 98 to 99 percent browse in the moose diet, with the majority being several species of willow. The use of other browse species such as subalpine fir, Douglas-fir, aspen, and dogwood, reported in other studies (Knowlton 1960; MDF&G 1972a; MDF&G 1969), appears to depend on their availability and that of various species of willow.

The 1969 MDF&G study in the Centennial Valley showed that competition for forage between moose and cattle was not significant. In that study, Dorn indicated that because cattle are basically grazing animals, poorly suited for browsing, the species of willow used by both cattle and moose did not overlap. Cattle browsed species that were generally low growing, whereas moose seldom used plants less than 3 feet high. In this area there was a wide variety of browse species available, allowing for differential feeding habits between moose and cattle to develop, so that serious competition was avoided. In areas where a wide diversity of browse does not exist, or where browse is predominantly low-growing species, competition between cattle and moose can be significant.

During hot season grazing (July through September), stream bottoms and riparian zones with browse cover receive intense livestock use, because feed is more succulent and water and shade are near. At these times there may be heavy use of current annual growth and reproducing sprouts of willow and other browse species. In addition, trampling and rubbing may damage plants sufficiently to reduce leader growth or

TABLE 2-17: MAJOR SAGE GROUSE HABITAT AREAS AND POPULATIONS

Season	Habitat Area	Allotments	Estimated Population or Relative Density[a]	Population Trend	BLM Habitat	
					Per-centage	Acreage
Breeding	Rocky Hills	0148, 0150, 0124, 0026, 0171	540		95	3,200
Breeding	Spring Creek	0025, 0035, 0112, 0004	22-35		42	2,850
Breeding	Barrett Creek	0021, 0761, 0032, 0132, Casey	11		33	2,800
Breeding	Muddy Creek	0699, 0700, 0039	10-30	Down	87	5,100
Breeding	Alkali-Cabin Creek	0115, 0158, 0704, 0009, 0041, 0042	25-40	Down	51	4,000
Breeding	West Fork Blacktail Creek	0113, 0105, 0012, Steamboat Rock			58	2,150
Breeding	Sage Creek	0012, 0604	65-70		73	3,000
Breeding	Basin Creek	0012	70-80	Static	48	2,950
Breeding	Lima Reservoir	0151	20	6.9	46	640
Breeding	Metzel-Fish Creek	0708	50		42	970
Winter	Argenta Flats	0197, 0005, 0006	High		84	2,200
Winter	Ermont	0005, 0006	High		67	660
Winter	Badger Gulch-Bachelor Mountain-Watson-Rawhide	0148, 0150, 0030, 0031, 0033, 0017, 0165, 0169, Flying N, Painter Creek	Very high		62	9,600
Winter	Horse Prairie	0019, 0016, 0035	High		77	1,360
Winter	Ashbough-Sage Creek	0010, 0714, 0703, 0038, 0027, 0007, 0008, 0013, 0002, 0003, 0136, 0604	Moderate		73	16,650
Winter	Sage Creek	0136, 0624	Moderate		51	860
Winter	Wolverine-West Creek	0740, 0702, 0716	Variable		56	1,350
Winter	Price-Peet Creek	0040, 0730	Variable		10	200
Winter	Tepee Creek-Sand Dunes	0732, 0733, 0710, 0711	High		28	1,680

Breeding	Rochester Basin	0324, 0308, 0309, 0661	7-20		59	3,200
Breeding	Birch-Willow Creek	0304, 0317, Birch Creek			13	720
Breeding	Sweetwater Basin	0678, 0518, 0519, 0516, 0677, 0469	48-57		24	2,850
Breeding	Table Mountain (Sage Creek-Cottonwood Creek)	0665, 0469	10		16	1,400
Winter	East Pioneer	0311, 0336, 0335, 0320, 0321, 0337, 0302, 0305, 0344, 0657, 0326, 0322, 0347, 0346, 0338, 0304, 0317, 0329, 0182, 0333, Trapper Creek, Cherry Creek, Sugarloaf Mountain, Birch Creek	Unknown		89	23,720
Winter	Sweetwater	0518, 0519, 0516, 0470, 0665, 0678, 0677, 0469, 0482, 0483, 0631	Unknown		27	14,770
Breeding	Burns Mountain	0014, 0160, 0026, 0632	17		37	2,100
Breeding	Timber Butte	0168, 0005, 0006	35-48		65	3,500
Breeding	Ermont	0005, 0006	25-37		83	5,350
Breeding	Dyce-Taylor Creek	0034, 0037, 0609, 0122, 0619	50-62		42	2,300
Breeding	Mill Point	0617	2-9		11	600
Breeding	Reservoir Creek	0122, 0015, 0760, 0723, 0030	55-76		83	8,350
Breeding	Badger Gulch	0033, 0031, 0030, 0148, 0150	43-44		77	5,750
Total					53.4	136,830

SOURCE: BLM, 1979.

a. Estimates were made from aerial census figures from both the Bureau of Land Management and the Montana Department of Fish, Wildlife, and Parks, and with the use of professional judgment based on several years' data.

eventually kill taller plants that would not normally be browsed by cattle. Both effects lead to decreased availability of forage for moose.

Sage Grouse

Sage grouse are the most important upland game bird in southwestern Montana. From 1967 to 1971, Beaverhead County produced 71 percent of the total harvest of sage grouse in the seven southwestern counties in the Montana Department of Fish, Wildlife and Parks Region 3 (MDFWP). Table 2-17 lists population estimates for major habitat areas that include public lands (see the map supplement).

Sage grouse are present on public lands during all seasons. A total of 21 strutting ground-breeding complexes that include public lands has been located. From 5 to 70 males utilize each strutting ground.

Winter habitat is not well defined, but wintering areas on public lands support thousands of grouse. These areas average about 57 percent public land. Major habitat areas for all seasons of use throughout the study area average 53 percent public land, representing more than 136,000 acres. About two-thirds of the habitat has not been intensively evaluated for seasonal sage grouse use. There are no doubt many additional breeding complexes and major habitat use areas on public land.

Unlike sage grouse populations elsewhere in Montana, most sage grouse in the study area are migratory, often traveling extensive distances between breeding, summer habitat, and winter habitat areas. Many birds, particularly those in the Horse Prairie and Big Sheep Creek areas, are suspected of migrating into Idaho to winter (Peterson 1979). Major winter habitats are the Badger Gulch-Bachelor-Rawhide Creek area (62 percent public land) and the Ashbough-Sage Creek area (73 percent public land). Known wintering areas in the north Centennial Valley, Ermont and Argenta Flat, East Pioneers, and Sweetwater consist of 10 to 89 percent public land and represent up to 23,700 acres.

Major breeding areas are found primarily southwest of Dillon in the Horse Prairie Drainage. Sage Creek (73 percent public land) and Basin Creek (48 percent public land) strutting grounds generally host 65 to 80 breeding male sage grouse. Reservoir Creek (83 percent public land) and Badger Gulch (77 percent public land) provide strutting grounds for 55 to 76 and 40 to 45 breeding males, respectively. Numerous other smaller breeding complexes are known throughout the southern portion of the study area.

Sage grouse populations throughout the study area appear to be fairly stable or slightly declining over recent years (MDFWP completion reports). Production is probably limited in many areas by low forb compositions caused by livestock grazing on breeding, nesting, and brooding areas. Wallestad and Pyrah (1974) found that 68 percent of grouse nested within 1.5 miles of the strutting ground, where they selected denser sage canopies (20 to 30 percent) and typically nested under a sagebrush plant.

Winter and summer habitats combined total approximately 532,500 acres of public lands. Winter habitat for sage grouse is generally characterized by moderate to high sagebrush canopy intermixed with grassland habitat types. Such habitat is generally found in upper valley and foothill areas where Wyoming sage is the principal shrub component. Sage canopy is generally more dense on winter range than in summer or breeding habitat. The big sage/bluebunch wheatgrass habitat type described by Mueggler and Handl (USDA, FS 1974) characterizes winter habitat. Sage grouse and antelope often winter on the same habitats, although grouse make more intensive use of local sites with higher sage canopies.

Livestock grazing practices have had very little impact upon grouse winter habitats, but artificial treatments have affected winter habitat to some degree. It is estimated that about 9,000 acres have been sprayed.

Grouse summer habitat in the Sheep Creek basin was characterized by Martin (MDF&G 1965) as having a sage canopy of 24 percent and vigorous grass and forb canopies of 34 to 35 percent and 22 to 23 percent, respectively. Sprayed areas in Martin's study provided only 4 percent of the grouse observations, although they made up 90 percent of the study area. The big sage/Idaho fescue habitat type described by Mueggler and Handl (USDA, FS 1974) characterizes most grouse summer habitat (see description in the section on mule deer). Abundant forb compositions are a key habitat component. Some summer habitat occurs in the drier big sagebrush/bluebunch wheatgrass habitat type (USDA, FS 1974) where moist drainages, swales, or riparian habitats are intermixed. In some cases, yellow sweet clover and/or dryland alfalfa seedings provide grouse summer-fall habitat where a recovery of the sagebrush composition has occurred. Irrigated alfalfa fields adjoining good sage cover also are used.

On summer habitat, past livestock grazing practices have degraded at least 50 percent of the habitat (240,000 acres) through losses of forbs and grasses. It is estimated that 63 percent of breeding complexes and brooding habitats has been degraded by grazing practices. The degradation has been extreme in some areas, such as Big Sheep Creek basin, Medicine Lodge Creek, Upper Horse Prairie, and the East Pioneer. Forbs are major spring-summer foods, and grasses complement brooding cover and produce insect supplies vital to juvenile grouse.

Artificial treatments have affected grouse less than grazing. Approximately 15 percent of sage grouse habitat has been affected by past spraying programs. Fortunately, most treatments occurred on summer habitats, where grouse require less sage canopy than on breeding complexes and winter habitats.

In Montana studies, Wallestad, Peterson, and Eng (1975) found sagebrush composed 62 percent of the annual sage grouse diet and 100 percent of the winter diet. Only during June, July, August, and September did sagebrush make up less than 60 percent of the diet. During summer months, forbs dominate the diet; the principal forbs are dandelion, goatsbeard, fringed sage, alfalfa, miner's lettuce, yarrow, curlycup gumweed, pepperweed, and false flax (Peterson, 1970). The diet of juvenile birds was found by Peterson to consist of 24 percent insects during their first two or three months. A vigorous herbaceous component is required to provide a plentiful insect supply and to complement sagebrush as brooding cover.

Mountain Grouse

Blue grouse, ruffed grouse, and spruce grouse all occur within the study area. Spruce grouse are essentially unaffected by livestock use because of their preference for conifer habitat types. Ruffed grouse are associated with riparian habitat that supports mixed stands of deciduous growth. These habitat areas are scattered throughout the study area, but ruffed grouse populations are low enough that poor riparian conditions caused by livestock grazing generally do not represent a major conflict.

Blue grouse are abundant and widespread in the study area. Their summer and fall distribution is largely coincident with the occurrence of Douglas-fir in relatively dry mountainous regions. Little effort has been spent in delineating the distribution of blue grouse, because of the relatively low inventory priority they have been assigned by both the BLM and the MDFWP. Nevertheless, they are recognized as an important game bird that is expected to gain in importance in the future. There are an estimated 100,000 acres of blue grouse habitat in the study area. This accounts for about 10 percent of the total public land considered. A majority of the total blue grouse habitat in the study area occurs on national forest land.

Preferred summer habitat is found within roughly a quarter-mile of the timber edge and riparian habitats that support aspen/willow complexes of vegetation. The best quality blue grouse summer habitat is typically a mixture of conifer stands and moist mountain sagebrush. Dense, monotypic coniferous cover at high elevations is more typical of the habitat occupied during the winter. Riparian habitats become increasingly important in late summer and fall as the upland areas become dry.

Quality summer habitat has a high density of forb and grass cover with a good interspersion of sagebrush. Studies in the Bridger Mountains indicated that a total herbaceous canopy cover of 60 to 70 percent (Mussehl 1968) was used heavily during the brood rearing period. Forb and grass cover values were found to be relatively equal in importance. Blue grouse broods use areas where vegetation is interspersed with plants of various life-forms, which provides a high degree of concealment (Mussehl 1968).

Grazing on blue grouse summer habitat is viewed as a source of conflict when stocking rates are excessive.

Raptors

The EIS study area has an abundance of raptor breeding habitat because of high densities of prey and good nest sites. Geologic formations conducive to nest construction are widespread and intensively used by golden eagles, prairie falcons, and red-tailed hawks. Open grasslands are used by ferruginous hawks for nesting/breeding habitat, notably in the vicinity of Ruby Reservoir. Swainson's hawks rely heavily upon willow bottoms for nesting sites throughout the entire area. They are among the most common species, along with the red-tailed hawk and the American kestrel. Short-eared owls and marsh hawks are frequently observed near mesic bottomlands.

Goshawks and sharp-shinned hawks are abundant in forested habitats.

Golden eagles are a source of conflict with some sheep ranchers. Influxes of large numbers of eagles in the early spring on open range lambing grounds can cause periodic significant lamb losses. The problem can be aggravated by periodic prey declines in adjacent states, which has at times caused widespread dispersal of eagles into southwestern Montana. The golden eagle situation has prompted action by the U.S. Fish and Wildlife Service to live-trap the eagles and transport them to Yellowstone National Park. The eagle situation is independent of livestock grazing influences, but is an issue of some importance in the basic question of how much predator loss is acceptable on public lands before control is exercised. The Continental Divide serves as a major migration corridor for golden eagles; thus, in the study area there will always be relatively large raptor populations during spring and fall movements (Nelson 1978).

Waterfowl

Waterfowl occur along major river drainages in the study area. The primary use area is in the Centennial Valley adjacent to Red Rock Lakes National Wildlife Refuge, where waterfowl from both the Pacific and Central flyways are found.

The Centennial Valley is typical of a prairie waterfowl breeding area, with flat topography, moist summers, long and cold winters, and a rapid transition from winter to summer. The Red Rock River originates in the valley from numerous small streams and springs and flows through extensive wetlands and large lakes in the upper portion of the valley. Approximately 40,000 acres of this habitat forms Red Rock Lakes National Wildlife Refuge, which was established in 1935 for protection of the trumpeter swan, then an endangered species.

Downstream from the refuge, the Red Rock River flows through a fairly narrow floodplain surrounded by rangeland; the river then flows into Lima Reservoir at the lower end of the valley. Public lands providing waterfowl habitat lie primarily in this lower half of the valley. There are approximately 11,800 acres of wetland habitat along the Red Rock River from Lima Reservoir to the refuge, with about 13 percent (1,500 acres) in public ownership in scattered tracts. Public lands surrounding Lima Reservoir amount to about 4,600 acres, or 53 percent. Livestock grazing on these public lands along the river and reservoir removes residual vegetation cover required by all species of nesting waterfowl; consequently, it is a major limiting factor for waterfowl production in these areas.

Waterfowl production data are not available for the habitat along the river, but it is known that production in that area is significantly less than the 7,000 to 10,000 ducks produced annually on the refuge. This is primarily due to more restricted habitat, more intensive livestock grazing on surrounding rangeland, and a general lack of suitable residual cover for nesting. Canada goose production is minimal, with three to ten broods produced on the river annually. Trumpeter swan nest in the lower portion of the valley where human disturbance is at a minimum and habitat requirements are suitable. Three to ten nests can usually be found between Lima Reservoir and the refuge, with two to three nests on public lands along the river and isolated ponds.

Very little waterfowl production occurs on Lima Reservoir, because little or no residual cover is available for nesting. This condition is a result of seasonal drawdown and intense livestock grazing on the shoreline. This is generally the case throughout the study area, with 59 percent of all waterfowl habitat in unsatisfactory condition because of livestock grazing. Lima reservoir is used as minor late brooding habitat by Canada geese and swans that have nested on the Red Rock River and adjacent private lands. Goose production is probably limited by interspecific competition for nesting sites with trumpeter swans and by a lack of good nesting habitat such as islands. Trumpeter swan production is fairly stable and is probably controlled by the amount of suitable nesting habitat available and by intraspecific factors.

Lima Reservoir is used as resting habitat for migrating birds, as habitat for birds undergoing eclipse molt, and as a local concentration area. As many as 100,000 ducks may use the Red Rock refuge and public lands during fall. Migrating Canada geese number 500 to 1,000 during the fall. Peak numbers of geese are found in the valley during June, and they congregate primarily on Lima Reservoir for molting. After this time, numbers gradually decrease until freezeup.

Significant numbers of whistling swans migrate into the Centennial Valley during late October and early November, when 1,500 to 3,000 swans are present. The degree of use and duration of the migration depends largely on weather conditions and ice cover on Upper and Lower Red Rock lakes on the refuge, and on Lima Reservoir. These birds are part of the population that nests in the Northwest Territories of Canada and winters in northern Utah and California.

Of eighteen major molting habitats used by Canada geese in the Rocky Mountains, Lima Reservoir was found to be the most important (Krohn and Bizeau 1979). Extensive banding and population research has revealed that nonbreeding and immature geese "migrate" significant distances from breeding grounds to areas such as Lima Reservoir for molting, and then they disperse again throughout the region. A BLM-supported study on Lima Reservoir during 1977 and 1978 indicated a peak number of 9,200 to 9,500 geese molting on the reservoir in June. This number is approximately twice the known number of geese using such molting areas elsewhere in the region (Hildebrand 1979).

Lima Reservoir also provides molting habitat for 100 to 125 nonbreeding trumpeter swans. Available habitat in Red Rock Lakes National Wildlife Refuge is "saturated" by nesting pairs during the breeding season. Through territorial defense, these pairs force nonbreeders out of the area and onto Lima Reservoir, although small groups of nonbreeders may be found on both Upper Red Rock Lake and Lower Red Rock Lake at this time.

There is no substantial overlap in food habits between livestock and ducks and swans; consequently, there is only minor conflict over forage production. Ducks and swans feed primarily on submergent aquatic vegetation or invertebrates in permanent waters. In ephemeral wetland areas, which are also important for waterfowl food supplies, some damage from livestock trampling occurs. This has indirect effects on food supplies for waterfowl through increased turbidity.

There is currently no competition for forage between geese and cattle (Hildebrand 1979); however, there is a potential for conflict to develop on Lima Reservoir if molting geese or cattle were to greatly increase, since food habits overlap. During June and July, when 5,000 to 9,500 geese are flightless on the reservoir, shoreline vegetation is grazed extensively by geese making use of new growth grasses and forbs. Geese are restricted to the zone generally within 50 yards of the high water mark of the reservoir during this flightless period. Cattle that graze in this zone during spring and early summer select much the same types of vegetation as geese.

Riparian Habitat

Riparian habitat is discussed separately because of its exceptional role in providing habitat for a great variety of wildlife species, as well as its floodplain functions and its scenic values. Riparian habitat is characterized by the presence of permanent surface water, usually small streams in the study area, and by a diverse assemblage of water-loving (mesic) plants. The riparian habitat is typically narrow (20 to 100 feet), elongate, and outstanding in "edge effect" because of a rapid transition from the aquatic environment to the dry upland or rangeland environment. Stream riparian habitat averages about 7 to 10 acres per linear mile, or 3,195 to 4,550 acres total, which is only 0.3 to 0.5 percent of the public land area.

Riparian surveys were based on quantity, condition, vigor, and age classes of palatable deciduous woody species and on the character and stability of stream banks. The assumption was made that these are valid indicators of overall vigor and productivity of riparian habitats. In addition, data on water quality and macroinvertebrate species composition were gathered on 21 stream reaches. Ultimately, data from all three parameters will be used to rate riparian reaches. Only woody species and bank condition data were used in this analysis, pending development of rating criteria for water quality and macroinvertebrates.

Woody riparian survey ratings appear to effectively evaluate habitat quality for moose winter habitat, fisheries habitat, blue grouse habitat, mule deer habitat, and nongame species habitat. Intensive nongame studies on riparian habitat in the Horse Prairie area (Rape Creek and Dyce Creek) documented substantial differences in abundance and species compositions of birds and mammals in surveyed reaches that were rated poor versus reaches that were rated good (table 2-18). Riparian survey data also have correlated well with fishery habitat evaluations (BLM, Dillon Resource Area files).

Riparian survey scores, altered by deleting points attributable to bank erosion, correlate well with stream bank erosion (figure 2-1). Further, linear regression analysis indicates that woody riparian species assume a much more critical stabilizing role in streams with low bank rock content. As bank rock content declines, a more vigorous vegetative condition is necessary to provide stability. Cooper (1977) found in Idaho streams that vegetation and bank rock content were the two stream components most signifi-

TABLE 2-18

COMPARISON OF ABUNDANCE OF COMMON NONGAME WILDLIFE ON POOR AND GOOD CONDITION PLOTS

Species	Wyoming Sage		Mountain Sage		Stipa Grassland		Bluebunch Wheatgrass Prairie	
	Poor Condition	Good Condition	Poor Condition	Good Condition	Poor Condition	Good Condition	Poor Condition	Good Condition
Horned lark					+	0	0	+
Western meadowlark					0	+		
Sage thrasher	0	0			+	0		
Brewer's sparrow	+	0	0	0	+	0	+	0
Vesper sparrow	0	0	0	+	0	0	+	0
Green-tailed towhee	0	+						
Grasshopper sparrow					0	+		
Deer mouse	+	0	+	0	0	+	+	0
Sagebrush vole	0	+	0	+			0	+
Least chipmunk	0	0			0	0		
Richardson's ground squirrel							+	0

Species	Riparin Habitat[a]		Species	Riparian Habitat[a]	
	Poor Condition	Good Condition		Poor Condition	Good Condition
Mourning dove		*	Warbling vireo	0	+
Yellow-bellied sapsucker	0	+	Yellow warbler	0	+
Clark's nutcracker		*	MacGillivray's warbler	0	0
Mountain chickadee		*	Green-tailed towhee	0	+
Ruby-crowned kinglet		*	American kestrel	+	0
Yellow-rumped warbler	0	+	Common flicker	+	0
Wilson's warbler		*	White-crowned sparrow	+	0
Lazuli bunting		*	Meadow vole	0	+
Dark-eyed junco		*	Jumping mouse	0	+
Empidonax flycatcher	+	0	Deer mouse	+	0
House wren	+	0	Least chipmunk	0	0
Robin	+	0	Vagrant shrew	0	+

SOURCE: Studies made in 1977-1978 by the University of Montana under contract to the Dillon Resource Area Office, Bureau of Land Management.

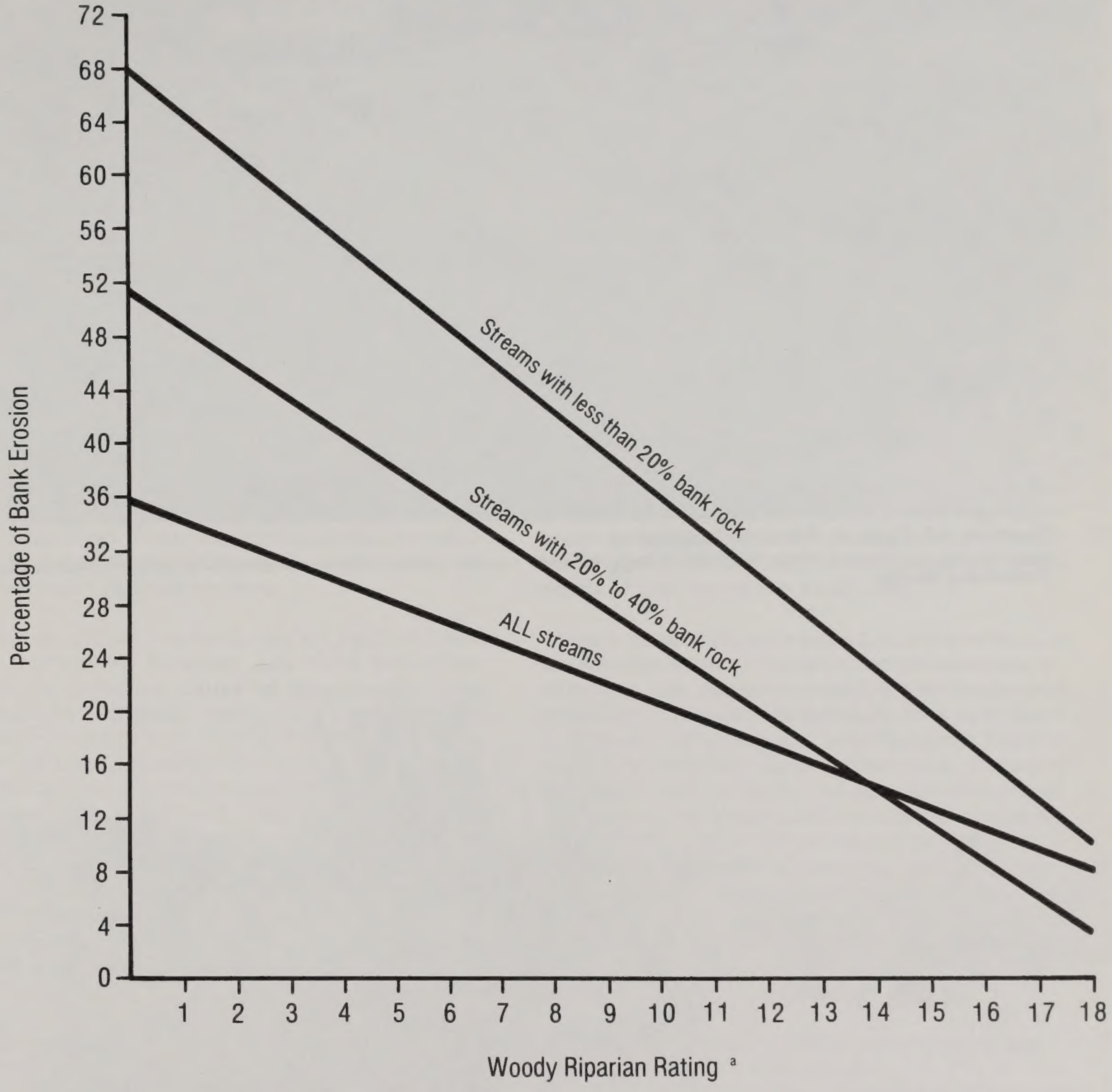
NOTE: For the purposes of this EIS, the raw data of the University of Montana nongame contract inventory was simplified and condensed into this format. This is a relative abundance scheme in which the lower absolute value of the number of breeding pairs of birds per plot or the number of mammals trapped is compared to the appropriate habitat counterpart. Actual numbers may be found in the bound edition of the above source, which is on file at the Dillon Resource Area office, Bureau of Land Management, Dillon, Montana.

a. | 0 | 0 | = no significant difference in observed abundances.

+ = more abundant than in compared plot.

* = observed on the study plot but not confirmed breeding.

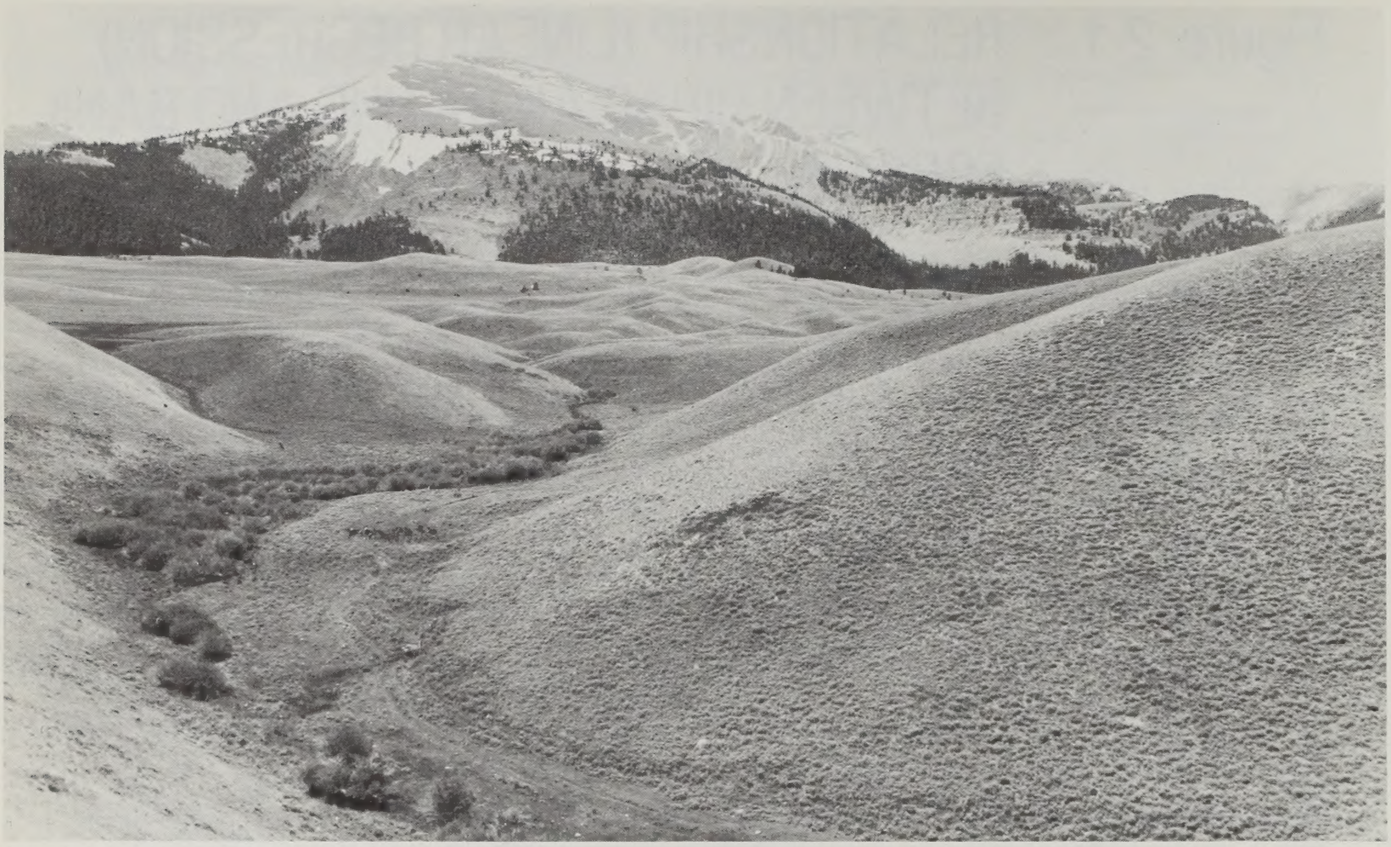
Figure 2-1 : RELATIONSHIP (LINEAR REGRESSION) BETWEEN RIPARIAN RATING AND BANK EROSION



All streams	**20 to 40% rock**	**20% rock**
n = 86	n = 28	n = 13
r= 0.370 (99%)	r = 0.683 (99.9%)	r = 0.455 (80-90%)
Y intercept = 36.6	Y intercept = 51.3	Y intercept = 68.9
slope = 1.59	slope = 2.71	slope = 3.38

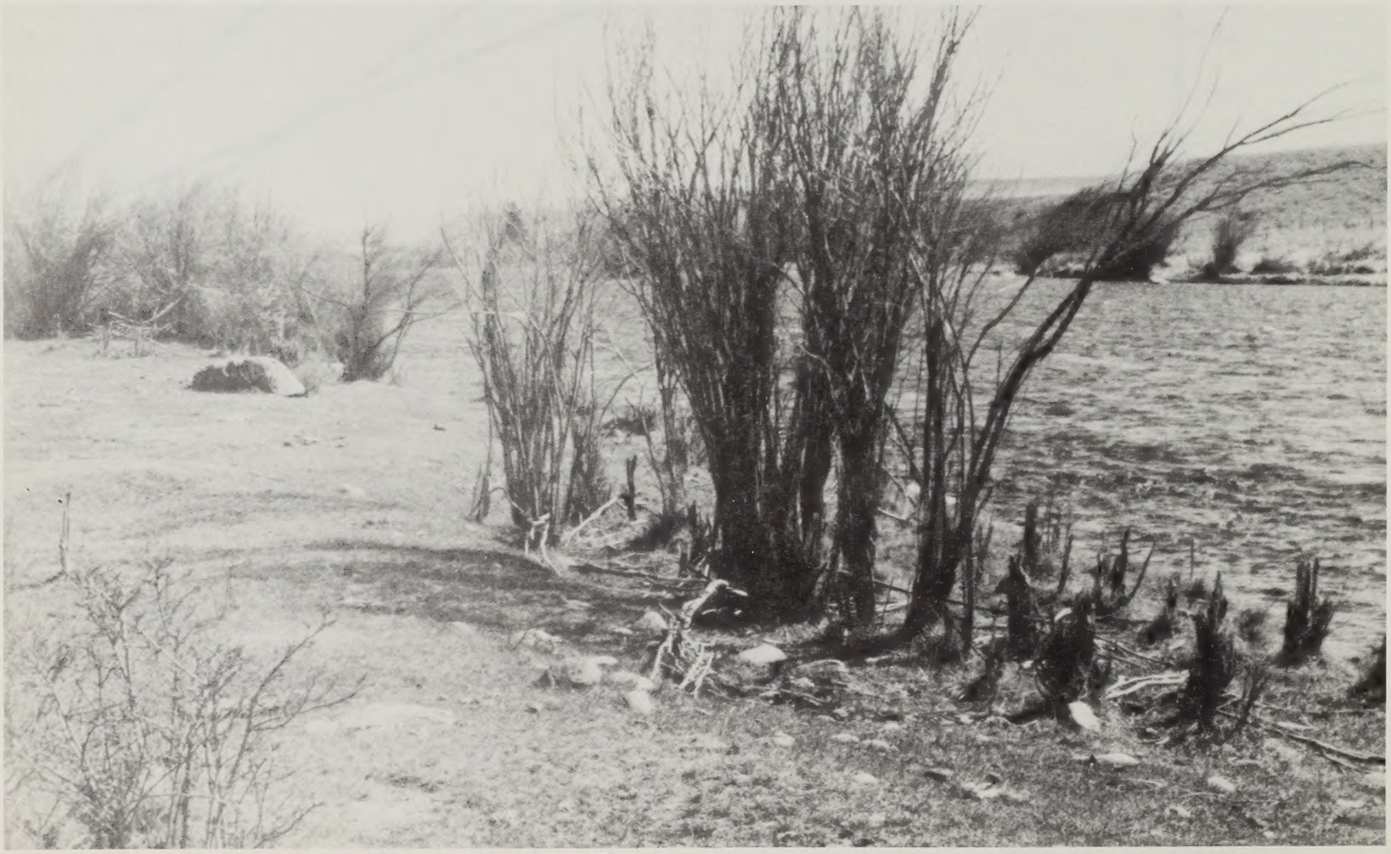
SOURCE: BLM, 1979.

[a] Adjusted by deleting points attributable to bank erosion.



12. Example of Typical Riparian Habitat

Most riparian habitats are within the foothills zone, between conifer-dominated mountains and drier valleys dominated by grasses and shrubs.



13. Degraded Riparian Habitat on Madison River

Annual summer use of riparian vegetation reduces vigor of herbaceous species and reproduction of woody species such as willow.

cant in terms of bank vulnerability to livestock damage.

Streams that were rated poor or fair are considered unsatisfactory in terms of wildlife management goals; they total 46.8 percent, or about 211 miles. A minor quantity of additional riparian habitat is rated unsatisfactory solely because of excessive bank erosion attributable to upstream watershed problems, rather than to onsite riparian condition. About one-third of riparian habitats are also fish habitats (approximately 155 miles) and two-thirds are not (approximately 300 miles). Riparian habitat on fisheries averages 48 percent unsatisfactory, and on nonfisheries, 55 percent unsatisfactory (table 2-14).

It is estimated that about 30 percent of riparian stream habitat is dominated by conifer overstory. On these streams, the understory of grasses, forbs, and broadleaf shrubs is sparse to nonexistent. Such reaches, generally in the upper headwaters, are typified by steep gradients, rocky banks, and very well-developed woody root systems (conifer). These riparian habitats are resistant to damage by grazing animals and were not evaluated in riparian surveys.

Heavy annual livestock use on riparian habitats, particularly between July 1 and September 1, is the principal cause of deterioration. Big game use has been evaluated in the Fleecer-Charcoal Gulch area (500 to 600 elk and about 200 deer) and adjoining the Blacktail Game Range (1,200 to 1,300 elk, plus moose). There is no stock use in these areas, and riparian habitats rated high in the "good" category. In more than 300 riparian surveys completed to date, big game use has not been shown to be the principal cause of unsatisfactory riparian condition; however, the potential for damage of riparian vegetation by excessive game numbers is acknowledged.

Headwaters and small tributary streams, in large part, dictate the productivity of downstream fishery habitats. Riparian vegetation plays a vital role in temperature regulation, flow characteristics, sediment abatement and stability, and external food and energy sources for aquatic organisms. Riparian stream habitats in the study area influence many major downstream fisheries, including the Red Rock, Beaverhead, Big Hole, Madison, and Ruby rivers and Big Sheep, Blacktail, Horse Prairie, Grasshopper, and Medicine Lodge creeks. Sport fishing values of these streams are discussed in the "Aquatic Wildlife" section of this chapter.

Riparian habitat is essential to at least 20 to 30 bird species and is utilized in part by at least 30 additional species. Many important game birds such as blue grouse, ruffed grouse, sage grouse, and Hungarian partridge rely upon this type. Many important nongame species use riparian habitat, including Swainson's hawk, bald eagle, marsh hawk, long-eared owl, pygmy owl, horned owl, osprey, great blue heron, sandhill crane, and goshawk.

Furbearers, including beaver, muskrat, mink, and otter, are obligates of riparian habitat. Amphibians such as rubber boa, garter snake, spotted frog, wood frog, and northern long-toed salamander utilize riparian habitats. Large mammals that make significant use of riparian habitat are mule deer, white-tailed deer, moose, elk, black bear, grizzly bear, coyote, and possibly wolf.

Common and Widespread Species

The most common and widespread nongame wildlife species are associated with the sagebrush-grassland habitat types typical of the Rocky Mountain foothills. These habitat types comprise about 47 percent of the study area.

From observations in sage types elsewhere in the western states, it appears the species composition of the superabundant small birds and mammals is the same in the study area as in parts of Oregon, Idaho, Nevada, and Colorado. Typical sagebrush habitats support deer mice, Brewer's sparrows, horned larks, vesper sparrows, and sage thrashers. Vegetative changes in composition, density, and structure are observable in relation to the influence of livestock grazing. These vegetative changes, which correspond to certain faunal changes, and were the subject of 1978 studies done by the University of Montana under contract to the Dillon Resource Area office of the BLM.

In a broad sense, grazing has a greater influence on nongame species than on any of the game fauna simply because the the nongame species and their habitat are so common in the study area. Table 2-18 shows the relative abundance of these species according to range condition. Absolute numbers of observed breeding pairs of birds or numbers of small mammals are not shown, in order to simplify the comparison of grazing influences. Needle-and-thread grassland and bluebunch wheatgrass studies are included in the table because of the similarity of animal species composition to habitats with a sagebrush aspect.

Spot mapping according to the international method in *Audubon Field Notes 24* (December 1970) was used for bird inventory, and varied approaches with snap traps were used for small mammals. Detailed species lists of other nongame fauna not sampled, but identified in these habitat types, are available in the files of the Dillon Resource Area office.

Riparian habitats are the most diverse and productive of the wildlife habitats in the resource area. Thomas et al. (1979) and many others have expounded on the value of riparian habitat. Major woody plant species in such habitats are quaking aspen and willow, which are influenced greatly by livestock grazing. There are approximately 455 miles of riparian habitat of this type in the resource area (table 2-14).

Data collected in Oregon by Thomas et al. (1979) are largely applicable to nongame in the study area. Thomas's study indicated that 288 terrestrial wildlife species out of a possible 363 (79 percent) depended on riparian habitats, and that nongame use there was disproportionately higher than in other habitats.

Livestock influence on the riparian zone is discussed in detail in the "Riparian Habitat" section of this chapter. Nongame species respond to grazing of herbaceous vegetation in the associated meadow types and to changes in structure and age classes of palatable woody plants, such as apsen and willow. Flack (1976) correlated increased bird nesting with increased shrub, grass, and forb canopy coverage in certain aspen types throughout the west. Evidence from contracted nongame studies in the resource area generally supports this conclusion. Substantial changes in small mammal density and diversity were directly correlated with good condition meadows in the contract study by the University of Montana (U. of M. 1978a). Correlations between nongame species composition and the condition of riparian communities are shown in table 2-18.

Because of the high elevations and latitude in the study area, both reptiles and amphibians are relatively scarce, and they are insignificant in the overall nongame wildlife community. Timken (n.d.) summarized data on reptiles and amphibians in the study area. Thirteen species were recognized as common and nine more species were expected to occur, but were unconfirmed.

The most unusual amphibian in the study area is the axolotl, a tiger salamander that occurs in the Virginia City vicinity in a series of glacial potholes. This population is the only one known to occur in Montana. Micken (1968) studied this population and provided the only current biological data. The axolotl is not currently listed as a "species of special interest" by the MDFWP; however, the BLM plans to nominate it for consideration. Grazing influences are a potential environmental hazard, in that nutrient enrichment from cow excreta could cause salamanders to metamorphose and thus lose their unique physical characteristics.

Threatened and Endangered Terrestrial Wildlife

Bald eagles, an endangered species, are fairly common in the larger river drainages of the study area during winter months. An estimated 20 to 30 bald eagles normally winter on the Beaverhead, Madison, and Big Hole rivers wherever well-developed cottonwood stands or willow growth occurs. Winter livestock and waterfowl mortalities reportedly account for bald eagle concentrations in the Centennial Valley and Medicine Lodge Creek (Gaasch 1979). Private lands provide the majority of winter habitat for bald eagles in the study area. A pair of bald eagles successfully nested in 1978 and 1979 on public lands adjacent to Red Rock Lakes National Wildlife Refuge in the Centennial Valley. One other nesting pair occurs in the study area on forest service lands.

Peregrine falcons have been observed in passage through the Centennial Valley during the late summer-early fall period by qualified observers. No active nesting sites are known to exist in the study area, although public land in the Centennial Mountains would appear to be classic nesting habitat of this endangered species because of the precipitous terrain and proximity to a significant waterfowl-producing area. Persistent cold temperatures and snow cover well into May may be the reasons there is no apparent peregrine nesting activity.

Reports of the endangered northern Rocky Mountain wolf have been concentrated largely around the Tendoy Mountains and along the Continental Divide between Lemhi Pass and Monida Pass. Roughly 35 fall-winter observations of varying reliability (tracks, scat, sightings) have been recorded in this vicinity within the last ten years, although about 120 observations have been reported throughout the entire study area. The study area is therefore considered unconfirmed habitat for the wolf, and continuing intensive investigations in the Tendoy-Horse Prairie vicinity are planned for the winter of 1979-1980 in an attempt to definitively establish the status of the wolf. Large concentrations of wintering big game are located on public lands in this area, providing an excellent prey base (Flath 1979a) that may play a significant role in supporting any remaining wolf population. However, Flath (1979b) has suggested that wolves may be gone from the area altogether, because populations may have become too small to support a pack social structure.

Grizzly bears, a threatened species, occupy public land on the north slope of the Continental Divide in the Centennial Mountains. An inventory contract was arranged in 1978 with the Interagency Grizzly Recovery Team to determine the nature and extent of grizzly use on BLM-administered lands. As a result of the investigation, it is recognized that the Centennial Mountains are suitable for grizzly bear use when considered as a part of the nearby Yellowstone habitat. The Centennials are probably not a large enough habitat unit to support a separate population. From past reports of people living in the area, it appears that grizzly bears are fairly common and that possibly some use it for their primary range (Knight 1978). Outside of miscellaneous reports of grizzlies on national forest lands, no other regions in the study area are known to support grizzlies.

The Science and Education Administration (SEA) administers approximately 16,000 acres of public land situated in the center of identified grizzly bear habitat in the Centennial Mountains. This area accounts for about 34 percent of the total identified grizzly habitat. Sheep grazing is the primary land use administered by the SEA. Because of the central location of this identified grizzly bear habitat, management prerogatives of the SEA are capable of greatly influencing grizzly populations in the Centennial Mountains.

Species of Special Interest and Concern

The Montana Department of Fish, Wildlife, and Parks (MDFWP) has determined that 35 species of nongame wildlife are of special interest in the study area. The reasons for designation are varied; generally, they relate to national population declines and the intensity of public interest that has been expressed by various groups concerned with nongame classes of wildlife. Table 2-19 summarizes the species of concern. Wolves and birds of prey have been assigned high priority in the BLM planning process.

Aquatic Wildlife

Many of the streams and rivers of southwestern Montana are nationally important fisheries. About 450 miles of perennial streams are cn BLM land in the study area, and approximately 150 miles of the streams are fisheries (see table 2-14 and Fisheries map in the map supplement). Many of these streams are "blue ribbon" trout waters—so designated by the Montana legislature because of their national importance—and others are tributaries to these blue ribbon streams. The Big Hole, Beaverhead, Madison, Jefferson, Ruby, and Red Rock Rivers all have public land along parts of their shores.

Two game species of fish in the study area are listed by the state of Montana as being of "special interest or concern." One is the native cutthroat, commonly called the Upper Missouri cutthroat or west slope cutthroat (Holton 1979). (Common and scientific names of fishes are listed in Appendix 16). This cutthroat was at one time widely distributed in all the western streams of Montana (Hanzel 1961). Hybridization with rainbow trout, introduction of nonnative cutthroat trout, and habitat degradation have resulted in the decline of the native cutthroat populations (USDA, FS 1977a).

The other fish species of special interest is the grayling, which is native in this state only to the upper Missouri River (Brown 1971), but has been introduced into other streams (Holton 1971). The grayling has shown the lowest tolerance (Willard and Margaret Herman, n.d.) and has declined most severely (Brown 1971) from habitat degradation, competition with introduced species, and, to some degree, possibly from overfishing (Holton 1971). The grayling is currently listed as threatened by Deacon et al. in a 1979 American Fisheries Society report, but it is not so listed by the U.S. Fish and Wildlife Service.

Other game species are mountain whitefish and rainbow, brook, brown, and the nonnative cutthroat trout. These species make up the majority of the catch from the study area. Appendix 16 lists the more than 17 fish species that are found in the study area. There are no nongame fishes of special interest or concern in the area (MDF&G 1979).

Fishing regulations are administered by the state of Montana. Nonnative game fish have been stocked into the larger, more accessible rivers, while some of the small, inaccessible headwaters streams have continued to contain native cutthroat. Many rivers and streams are not being

TABLE 2-19

SPECIES OF SPECIAL INTEREST IN THE STUDY AREA

Mammals

Preble shrew
Long-legged bat
Fringed bat
Spotted bat
Big-eared bat
Wolverine
Spotted skunk
Wolf
Lynx
Hoary marmot
Great Basin pocket mouse

Birds

Goshawk
Cooper's hawk
Swainson's hawk
Ferruginous hawk
Golden eagle
Bald eagle
Osprey
Prairie falcon
Peregrine falcon
Pigeon hawk
Whooping crane
Mountain plover
Upland sandpiper
Long-billed curlew
Pygmy owl
Burrowing owl
Barred owl
Great gray owl
Long-eared owl
Saw-whet owl
Western bluebird
Olive-sided flycatcher

Amphibians

Tailed frog
Wood frog

Reptiles

None

SOURCE: Montana, Department of Fish and Game, Non-Game Species of Special Interest or Concern, by D. L. Flath (Helena, MT: January 1979).

stocked because (1) there is competition between native and nonnative species for spawning and rearing grounds; (2) possible earlier hatching of progeny of hatchery fish results in a competitive advantage; and (3) hybridization of native and hatchery fish causes disruption of the adaptive gene pool (Allendorf and Utter 1979).

The quality and quantity of the water are major factors in the number and size of fish found in the study area. A two-year contract study by the Montana Forest and Conservation Experiment Station provided data on water quality, macroinvertebrates, and other water-related criteria (Foggin, Reid, and Gilbert 1978). The quality of the water is generally good, but it varies with each drainage. Generally water quality is adequate to support the fish popoulation, but mining activities, road building along streams, and livestock use have resulted in severe pollution problems along selected drainages, and irrigation has reduced the water volume of some streams (see the discussion of water quality in the "Water Resources" section of this chapter).

Many streams are on patented mining claims, where heavy metals dissolve and pollute the streams. Some stream banks have been overused by livestock, which results in siltation, elevated water temperatures, and stream bank instability. Most livestock management areas with perennial streams have been so severely degraded that stream banks are unstable and there is inadequate cover and riparian vegetation for an optimum fishery (USDI, BLM 1977b).

LAND USES

LANDOWNERSHIP

Within the study area, 86 percent of the surface lands are in private or other ownership (see table 2-20 and the Surface Ownership map in the map supplement). Lands administered by the BLM constitute 14 percent, or 954,626 acres, of the study area. BLM-administered lands predominate in those areas under consideration for allotment management plans (AMPs). Surface lands under BLM administration make up 59 percent of the total AMP acreage (see table 2-21). Table 2-22 displays by county the acreage administered by the BLM and other lands either administered by other agencies or privately owned.

WILDERNESS

Several areas have been proposed by the BLM as Wilderness Study Areas (WSAs). Pending public comment, some of these areas may be dropped from the WSA category. Of the areas that are carried forward, some may not be designated wilderness.

Instant Study Areas (ISAs), which are currently under study, are assumed to have greater potential for designation as wilderness than most WSAs. The ISAs are shown on maps 2-1, 2-2, and 2-3. All ISAs and WSAs are under interim management until they are dropped from consideration for potential designation. No action may take place in these areas until it is determined that the action would not impair wilderness characteristics (see USDI, BLM 1979b).

The three ISAs in the study area are Centennial Mountains, Bear Trap Canyon, and Humbug Spires. As mandated in section 603(a) of the Federal Land Policy and Management Act of 1976, the BLM has until July 1, 1980, to report to the President on any areas that were identified as natural or primitive areas prior to November 1, 1975. The report for the Centennial Mountains, however, has been delayed for one year and will be completed by July 1981.

The Bear Trap Canyon Instant Study Area (ISA) is a nine-mile gorge cut through the Madison mountains by the Madison River. Its nearly vertical walls rise to about 1,300 feet at the south end and 500 feet at the north end. Although it does contain some evidence of human work, it is primarily undeveloped and unscarred by human activities. Intrusions into the natural state of the area include a cabin, a jeep trail, and remains of small campsites, fences, and fence corners.

The six streams flowing through the ISA to the Madison River have cut deep gorges during their rapid descent. Only two gorges provide easy access to the river from the hills above. Bear Trap's rugged topography has limited but not prevented human activity in the area.

The Humbug Spires ISA contains 11,301.57 acres, with the dominant feature being the granite spires that are part of the Boulder Batholith. Hardrock climbers are attracted to the upthrust spires, which form cliffs ranging up to several hundred feet in height. Elevations range from 6,900 feet along Moose Creek on the southern boundary to a high point of 8,069 feet along the northern boundary of the area.

Most of the Humbug Spires ISA is tree-covered with a mixture of species, including Douglas-fir, lodgepole pine, Engelmann spruce, alpine fir, and whitebark pine. In wetter areas, cottonwood, willows, and aspen make up the vegetative cover. Some of the Moose Creek tributaries are slow-moving streams, with tiny pothole lakes persisting in wet mountain meadows.

The Centennial Mountains are an east-west range of mountains, 35 to 40 miles long, on the Montana-Idaho border, with elevations varying from 5,000 feet to about 11,000 feet. They are bordered on the north by the Centennial Valley and on the south (Idaho) by the Targhee National Forest. The southern boundary is a surveyed line along the Continental Divide.

The Centennial Mountains ISA is characterized by rugged mountains. The eastern portion is a steep escarpment that rises from the valley floor at 6,600 feet elevation to a crest of more than 9,500 feet. In some places the elevation changes nearly 3,000 feet in a distance of 1 mile. The lower slopes are timbered and the upper reaches of the range contain broad areas of grasslands intermixed with heavy stands of forbs. Dissecting streams have steep valley sides that are marked by cliffs formed on resistant strata. A prominent fault scarp is exposed at places along the north base of the range, indicating that uplift was fairly recent. A large portion of this area is withdrawn and used by the Department of Agriculture for experimental sheep grazing. Several lakes, streams, and springs are found throughout the area.

MINERAL RESOURCES

Much of the study area was initially settled by miners, who in 1862 found many rich mineral

TABLE 2-20

TOTAL ACREAGE DISTRIBUTION AND LANDOWNERSHIP

	Existing and Revised AMPs	Proposed AMPs	Non-AMPs	Unallotted Areas	Total Acreage
BLM-administered acreage	352,574	438,180	122,682	41,190	954,626
Percentage	63%	56%	N/A	N/A	14%
Other acreage	209,818	350,706	N/A	N/A	5,802,191[a]
Percentage	37%	44%	N/A	N/A	86%
Total acreage	562,393	789,297	N/A	N/A	6,755,977
Percentage	100%	100%	N/A	N/A	100%

SOURCE: BLM, 1979.

a. Acreage calculated by subtracting total public land acres (954,626) from the total acres (6,755,977) in the EIS study area.

TABLE 2-21

AMP ACREAGE DISTRIBUTION AND LANDOWNERSHIP

	Proposed AMPs	Existing and Revised AMPs	Total AMP Acreage
BLM-administered acreage	438,180	352,574	790,754
Percentage	56%	63%	59%
Other acreages	350,706	209,818	560,524
Percentage	44%	37%	41%
Total acreage	789,886	562,392	1,351,278
Percentage	100%	100%	100%

SOURCE: BLM, 1979.

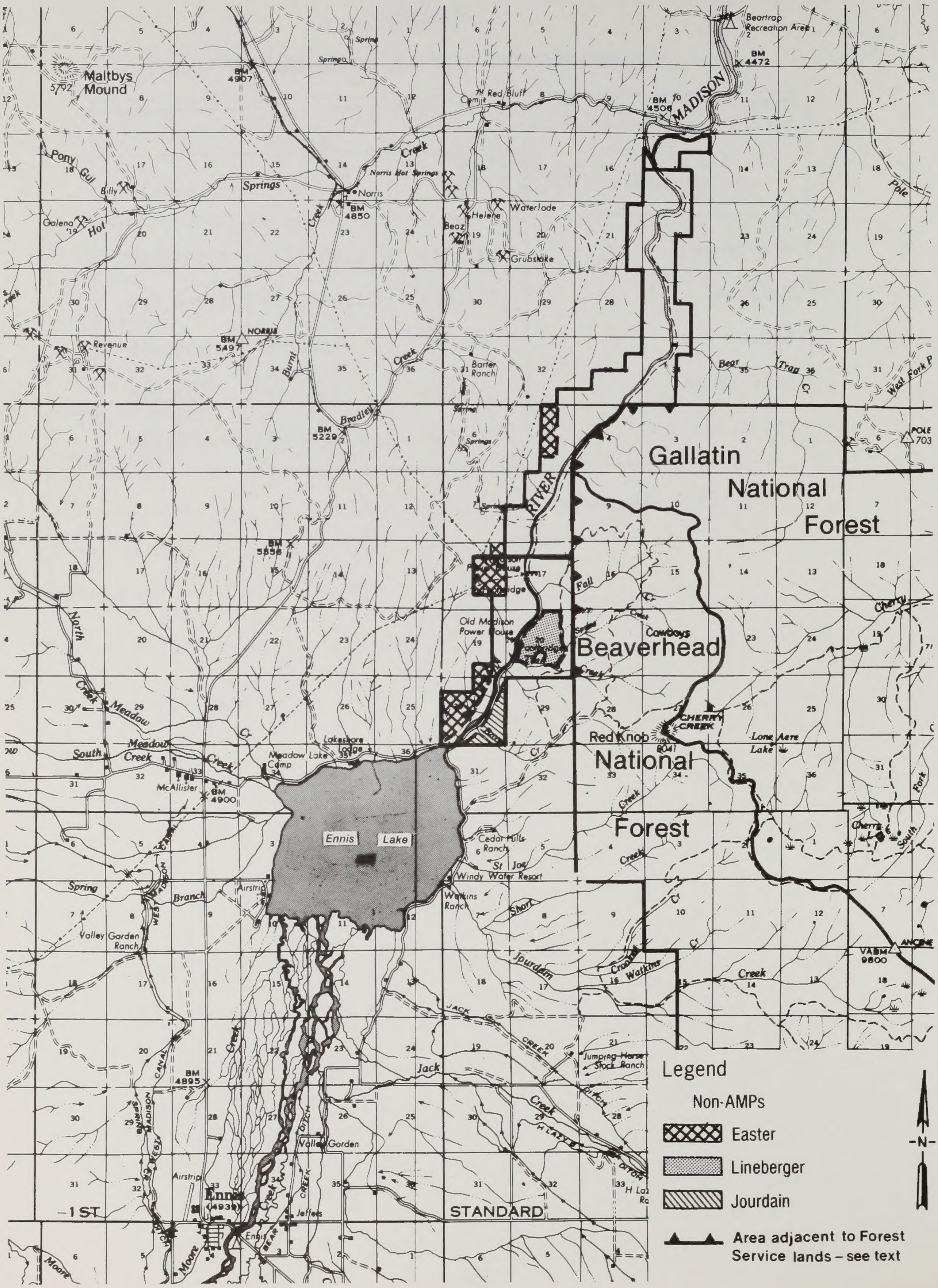
TABLE 2-22

BLM-ADMINISTERED LAND AND OTHER LAND BY COUNTY

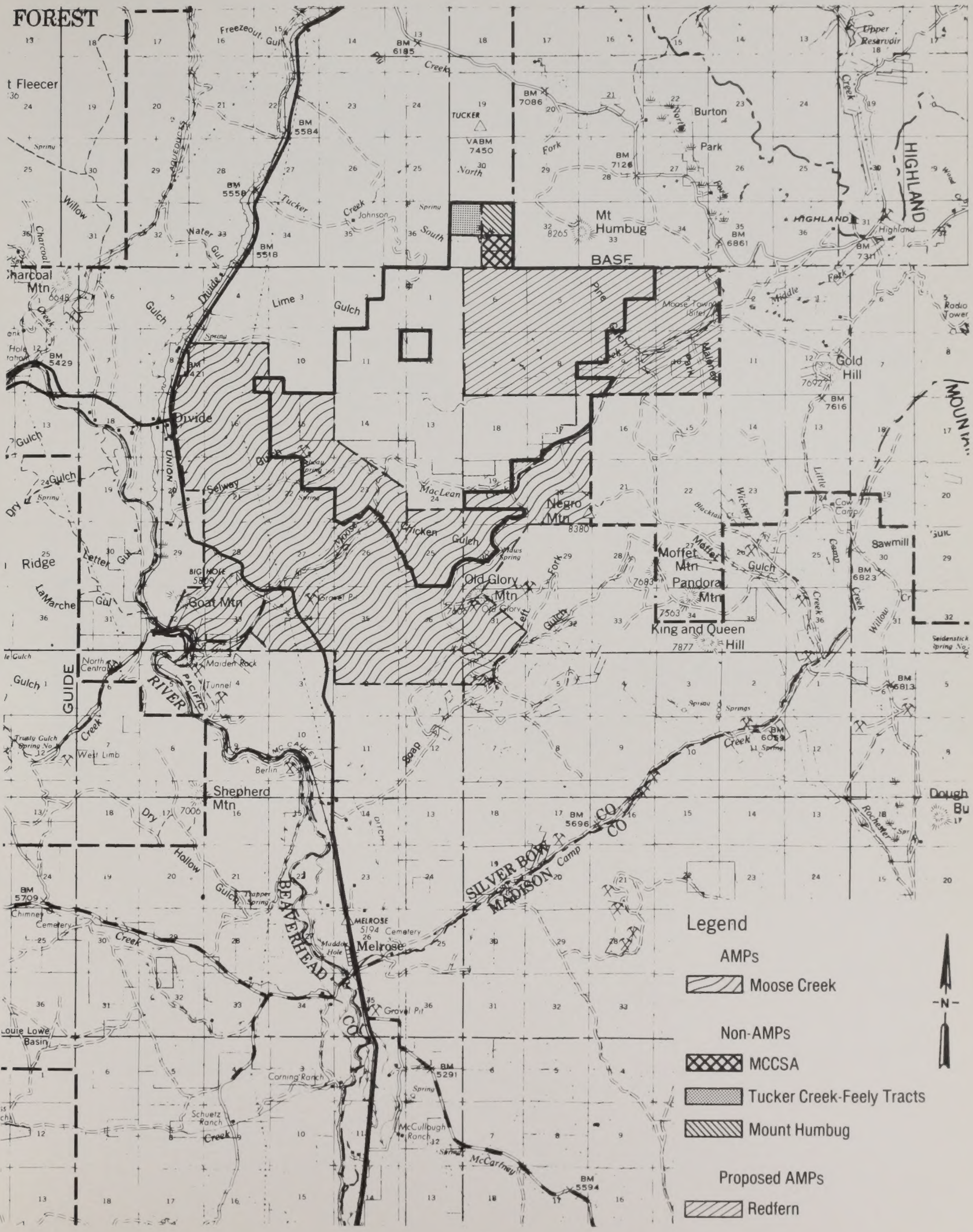
County Name	Acres		
	BLM	Other	Total
Beaverhead	651,723	2,904,737	3,556,460
Madison	252,690	2,014,229	2,266,919
Silver Bow	44,390	414,216	458,606
Deer Lodge	5,823	468,169	473,992
EIS Area Total	954,626	5,801,351	6,755,977

SOURCE: BLM, 1979.

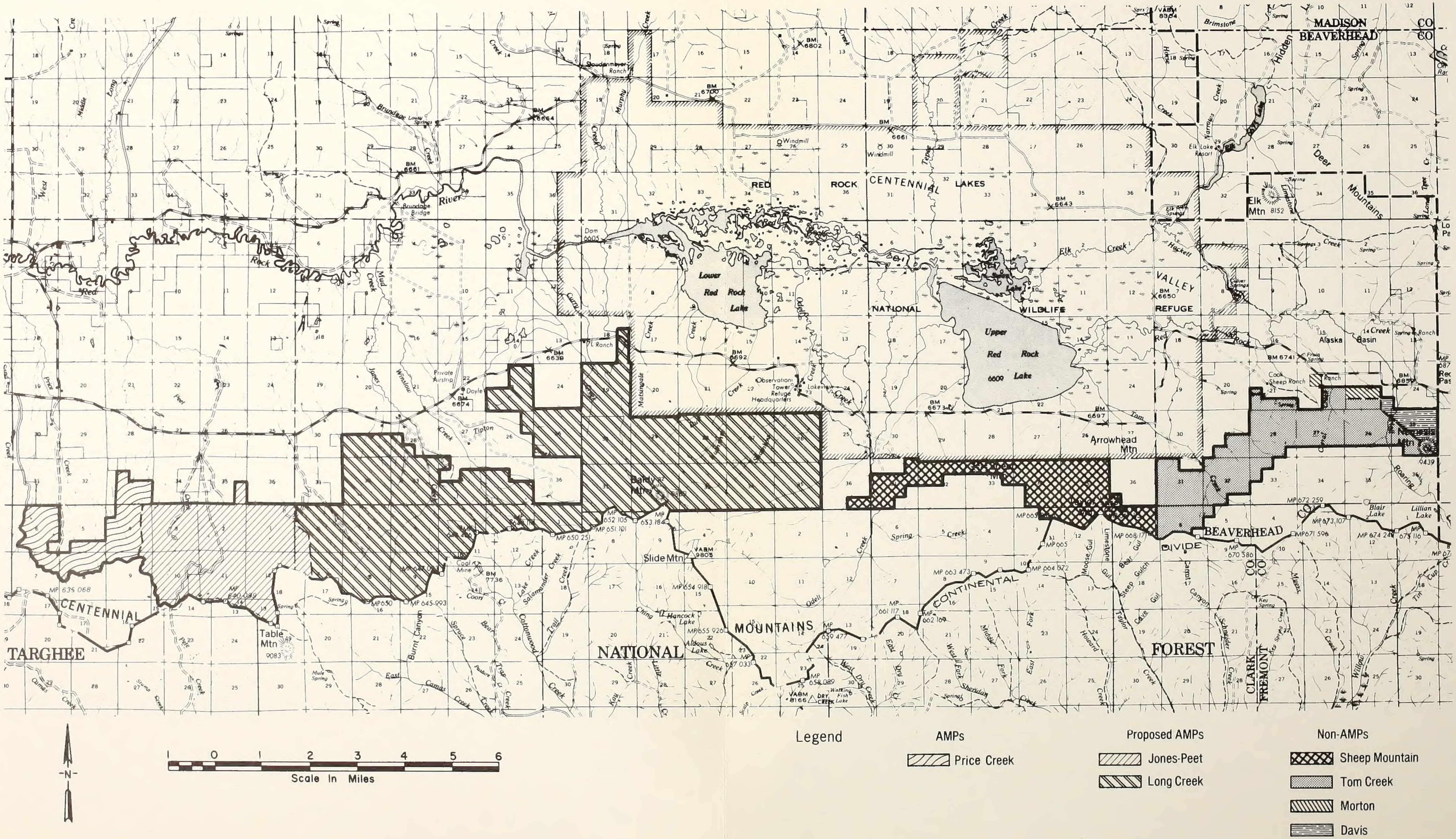
MAP 2-1: BEAR TRAP CANYON INSTANT STUDY AREA



MAP 2-2: HUMBUG SPIRES INSTANT STUDY AREA



MAP 2-3: CENTENNIAL INSTANT STUDY AREA



deposits; the area is dotted with sites where mining activity was extensive. Gold (both lode and placer) and silver were the earliest minerals discovered, but many other hardrock minerals have since been found in the area, including tungsten, iron, copper, lead, zinc, thorium, uranium, and talc.

The mineral industry has been extremely important in the economic development of southwestern Montana. Only in the years after World War II was there a decline in mining. More recently, the interest of major companies in talc and in hardrock exploration has caused mining activity to increase again. In fact, mineral interests account for the major income from taxes in three of the four counties in the study area: Silver Bow, Deer Lodge, and Madison. More than a quarter of a million mining claims have been recorded in the study area from 1862 to the present. About 400 to 600 new claims are located annually in each of the four counties.

Leasable minerals known to occur in the area are phosphate, oil shale, coal, oil, and gas. Geothermal resources also are found in this area. Of these commodities, only phosphate has been produced commercially. No interest has been shown in the coal and oil shale deposits, and only a few thousand acres of federal land have been leased for geothermal resources and phosphate.

The leasing picture for oil and gas, however, is drastically different. Since these resources were discovered in the now-famous Overthrust Belt in mid-1976, nearly 1 million acres have been either leased or applied for of the total 1.5 million acres of federal mineral estate in the study area. (The total is exclusive of national forest lands, refuges, etc.) The study area lies wholly within the north-south trending overthrust structures. Four dry wells were drilled in the area in 1977 and 1978, but the fact that nothing was found has not slowed the leasing interest.

In addition to the BLM-administered lands being leased for mineral development, about a million acres of Forest Service lands have been filed on, and much of the private and state land has been leased. The income generated by the leasing activity, in addition to the dollars left in the study area by the numerous geophysical and drilling crews, is certainly having an effect on the economy of the area as a whole, but the effect is hard to measure.

Saleable minerals in the area are riprap, building stone, sand and gravel, barrow material, and peat. About a hundred permits (including free use permits) are issued annually by the Dillon Resource Area office.

RECREATION

Public lands in the EIS study area offer recreational opportunities of local, regional, and national importance. Dispersed and site-oriented opportunities are available for hunting, fishing, camping, picnicking, hiking, and floatboating (use of canoes, kayaks, rafts, and rowboats).

Hunting and fishing are the primary recreation activities in terms of amount of use, quality and quantity of opportunities, and user preference. Activities such as camping, picnicking, hiking, sightseeing, and floatboating are important and are primarily pursued in conjunction with and as components of hunting and fishing activities. Activities pursued separately from hunting and fishing are of less importance in terms of the amount of use. Some type of recreation takes place on public lands in the area during all periods of the year.

Quality of Recreation Opportunities

The quality of all significant recreation opportunities occurring on public lands within the study area has been rated in accordance with section 6111 of the BLM Manual, "Quality Evaluation of Recreation Use Opportunities." Each type of recreation opportunity was rated on a relative scale of class A, excellent; class B, above average; and class C, average to below average. Maps in the map supplement visually portray the location and quality ratings for big game, upland game, and waterfowl hunting; stream and lake fishing; general sightseeing; wildlife observation; and floatboating. The rating process is designed to determine, on a relative scale, the quality of experience a visitor can expect while participating in a specific recreation activity.

The quality of hunting opportunities for elk, mule deer, antelope, bighorn sheep, moose, waterfowl, and upland game (sage grouse) varies from below average to excellent. Elk hunting opportunities, in particular, are considered nationally important. Although a significant proportion of big game hunting opportunities occurs on private and other federal lands (primarily in national forests), BLM-managed lands are extremely important in providing hunting opportunities as well as big game winter range. Big game, and also sage grouse, which winter on public lands, are frequently located on state, private, and national forest lands during the hunting seasons. Table 2-23 emphasizes this point.

Fishing on such famous streams as the Madison and Big Hole rivers is nationally important. The high quality of the area's scenic resources adds immeasurably to the quality of hunting, fishing, and all other activities.

Although the present rating system does not provide for evaluating the quality of camping, hiking, and picnicking activities, opportunities for these activities on public lands are excellent throughout the study area.

Recreation Use

Locations, Types, and Amount of Use

The locations, types, and amount of recreation in the study area are shown in Appendix 11. Tables 2-24 and 2-25 summarize important elements of the information in Appendix 11.

For survey purposes, a recreation area was defined as a contiguous tract of public land with consistent recreation patterns throughout. Within this context, three types of use areas--developed, semideveloped, and undeveloped--were defined in accordance with the level of facility development and the intensity of use.

Developed (intensive use) areas are major campgrounds with drinking water, vault toilets, garbage cans, picnic tables, fire grills, and individual camping spur facilities. Semideveloped areas generally receive less intensive use and have fewer facilities, but usually have pit toilets and picnic tables.

Undeveloped areas have no facilities and generally receive less use; however, some undeveloped areas do receive a substantial amount of use. Undeveloped recreation areas are characterized as areas in which dispersed use activities such as hunting, fishing, camping, backpacking, and sightseeing can be defined by the amount of use and the number of use indicators (roads, fire rings, trails) that are found within a specific geographic area.

Dispersed use occurs on the remainder of public lands within the study area. Although such uses, which include hunting, fishing, and other activities, are important, the extreme difficulty encountered in surveying the large expanse of land prevented collection of data about these uses.

Table 2-24 provides a summary analysis of all activities identified as occurring on the developed, semideveloped, and undeveloped recreation areas. A summary of the recreation visits by type of recreational use area is provided in table 2-25. The information presented in tables 2-24 and 2-25 does not provide a total account of all use occurring in the study area. An unknown amount of dispersed use was not surveyed. The major value of the data collected is in defining the relative importance of various recreation areas and activities occurring on public lands in the study area.

The facts provided in table 2-24 and Appendix 11 reveal that the major recreation activity is sport fishing, which accounts for 50.5 percent of the observed use. Activities other than hunting and fishing are second in importance, accounting for 39 percent of the total use. However, it is again emphasized that the activities in this category occur in association with hunting and fishing. Hunting, accounting for only 10.5 percent of the total use, is shown to be the least important activity, but hunting is undoubtedly the most difficult dispersed activity to measure. It is expected that future survey efforts will reveal a much higher level of hunting. It is important to again emphasize the direct value of public lands for big game hunting opportunities. Hunting on much of the private and other public lands in the area depends to a large extent on the proper maintenance of winter game ranges on public lands (see table 2-23).

User Characteristics and Preferences

Visitors to public lands were divided between Montana residents (46 percent) and residents of other states and Canada (54 percent). Table 2-26 shows the origin of nonresidents. The percentage of nonresident use and the origins of nonresidents, from Canada and from states throughout the United States, clearly substantiate the national importance of the recreation resources and opportunities provided on public lands in the study area.

Further evidence of the national importance of recreation in the area is the fact that a significant percentage of recreationists said that public lands were their primary recreation destination. Even with the proximity of Yellowstone National Park, 37 percent of the recreationists using public lands in the Madison River corridor indicated that the river area was their primary destination. Another 21 percent of recreationists in the Madison River corridor indicated they were traveling

TABLE 2-23

CONTRIBUTION OF BLM-MANAGED LANDS TO BIG GAME HUNTING OPPORTUNITIES IN THE STUDY AREA

Montana Department of Fish, Wildlife and Parks Hunting District Number	Percentage of Contributions to Hunting[a]					
	Elk	Mule Deer	Antelope	Bighorn Sheep	Mountain Goat	Moose
327	40	75	--	--	--	--
360	5	5	5	--	--	--
324	15	10	--	--	5	5
325	75	75	--	--	--	--
300	65	45	65	--	--	--
302	75	80	--	--	--	--
328	25	25	--	--	--	--
329	75	50	80	--	--	--
331	30	80	--	--	--	--
322	75	75	--	--	--	--
320	25	20	5	--	--	5
340	60	80	--	80	--	--
319	60	60	--	--	--	5
332	15	--	--	--	--	--
323	--	25	--	--	--	--
326	--	80	--	--	--	--
301	--	--	35	--	--	15
330	--	--	70	--	--	--
321	--	--	50	--	--	5
310	--	--	65	--	--	--
341	--	--	80	--	--	--
313	--	--	--	--	--	5
333	--	--	--	--	--	75

SOURCE: These figures were arrived at by BLM personnel in conference with biologists from Region 3, Montana Department of Fish, Wildlife, and Parks, on August 6, 1979.

NOTE: Refer to the Wildlife maps in the map supplement. They delineate the various hunting districts within the study area.

a. This represents the percentage of total hunting opportunities in the hunting district contributed by BLM-managed land through either big game winter range or actual hunting opportunities.

TABLE 2-24

SUMMARY OF RECREATIONAL ACTIVITIES
ON PUBLIC LAND IN THE EIS STUDY AREA

Activity	Number of Recreation Visits[a]		Percentage of Total Use	
Hunting				
Big Game				
Elk	3,319			
Deer	1,294			
Antelope	967			
Moose	10			
Big game subtotal		5,590	9.0	
Upland Game		698	1.0	
Waterfowl		215	0.5	
Hunting subtotal		6,503		10.5
Fishing				
Stream	30,002		47.5	
Lake	1,630		3.0	
Fishing subtotal		31,632		50.5
Other Activities[b]		24,960		39.0
Total		63,095		100.0

SOURCES: Donald C. Baty, Recreational Use and Resource Analysis of BLM Lands Within the Madison River Corridor (Boulder, CO: Western Interstate Commission for Higher Education, 1977); Andrew C. Epple, Recreation in the Dillon Resource Area (Boulder, CO: Western Interstate Commission for Higher Education, 1977); U.S. Department of the Interior, Bureau of Land Management "The Recreation Area Inventory System (RAIS)," Dillon, MT: 1978. (Typewritten.)

a. A recreation visit is defined as one person engaged in one activity for all or any portion of a day.

b. Rock-climbing, backpacking, wildlife observation, hiking, floating, water sports, camping, picnicking, rock and mineral collecting, sightseeing, and other nonhunting, nonfishing activities.

TABLE 2-25

SUMMARY OF RECREATION VISITS BY TYPE OF RECREATION AREA

Recreation Area	Developed		Semideveloped		Undeveloped	
	Number of Areas	Number of Recreation Visits[a]	Number of Areas	Number of Recreation Visits[a]	Number of Areas	Number of Recreation Visits[a]
Madison River Corridor	3	14,080	1	260	13	21,470
Big Hole River Corridor	0	0	3	5,950	7	3,250
Other Areas	0	0	1	3,700	27	14,385
Totals	3	14,080	5	9,910	47	39,105

SOURCES: Donald C. Baty, Recreational Use and Resource Analysis of BLM Lands Within the Madison River Corridor (Boulder, CO: Western Interstate Commission for Higher Education, 1977); Andrew C. Epple, Recreation in the Dillon Resource Area (Boulder, CO: Western Interstate Commission for Higher Education, 1977); U.S., Department of the Interior, Bureau of Land Management, "The Recreation Area Inventory System (RAIS)," Dillon, MT: 1978. (Typewritten.)

[a] A recreation visit is defined as one person engaged in one activity for all or any portion of a day.

through, while 42 percent said the area was one of multiple destinations. Sixty-three percent of visitors to other public lands said the land they were visiting was their primary destination, 31 percent called it one of multiple destinations, and 6 percent said they were traveling through.

Appreciation of the undeveloped nature of recreation areas on public lands was indicated in responses showing that a majority of the recreationists surveyed (56 percent) were seeking a primitive, unconfined, uncrowded recreational experience.

Special Management Areas

Locations of the following important management areas are delineated on the Recreation maps in the map supplement. Grazing proposals analyzed in this EIS will have either a direct or an indirect impact on the recreational/scenic values provided by these areas.

National Trails

Three trails of national significance traverse public lands in the study area. The Continental Divide National Scenic Trail passes through the southern portion of the area, principally in the Centennial Mountains, and the Lewis and Clark and Nez Perce national historic trails traverse major portions of the area. Final alignments of these trails have not been specified, but it appears public lands will be crossed. Development of the trails could significantly increase hiking and backpacking use of lands administered by the BLM.

National Forests

The Beaverhead and Deerlodge national forests provide the major supply of recreation opportunities in the areas. Most of the recreation areas are concentrated in forested portions of the Pioneer, Bitterroot, Tobacco Root, and Gravelly mountains. A wide variety of recreation opportunities is provided in settings ranging from vast, unroaded primitive areas to developed recreation sites. Recreationists utilize these vast contiguous lands and developed sites to hunt, fish, camp, picnic, snowmobile, ski (downhill and cross-country), boat, hike, ride horseback, and participate in other common outdoor recreation activities. In the two national forests there are 85 campgrounds and 34 picnicking sites.

Red Rock Lakes National Wildlife Refuge

This refuge, administered by the U.S. Fish and Wildlife Service, Department of the Interior, was established in 1935 as a result of public concern for the largest of all North American waterfowl, the trumpeter swan. The marshes and lakes within the refuge produce the solitude and isolation needed by the trumpeter swan.

Although the trumpeter swan was classed as a rare species until 1970 and is the refuge's major concern, the refuge also offers two campgrounds, one near Upper Red Rock Lake and the other near Lower Red Rock Lake. In 1976, 32,350 acres in the refuge were designated the Red Rock Wilderness Area.

Clark Canyon Reservoir

The Bureau of Reclamation maintains several separate recreation areas at Clark Canyon Reservoir. Approximately 80 camp units and 60 picnic sites are available at 13 separate locations. Boat ramps are provided at Beaverhead, Lewis and Clark, Lone Tree, and Horse Prairie recreation areas. Camping, picnicking, swimming, fishing, powerboating, and waterskiing are available at the reservoir.

Existing Conflicts between Recreation and Grazing Activities

The major conflicts now occurring between recreation and grazing activities are the concentration of livestock in semideveloped and undeveloped recreation areas and the access restrictions imposed by the current amount of fencing and number of gates. Livestock concentration conflicts primarily occur at undeveloped recreation areas near streams, rivers, and lakes, while fencing and gate access conflicts primarily affect dispersed use activities such as hunting, fishing, and snowmobiling.

The level of conflict now present between recreation and grazing and the current problems over gates and access are both characterized as moderate. A general discussion of how these factors affect recreation opportunities is provided as part of the impact analysis in chapter 3.

Future Trends

As indicated in the 1978 Montana Statewide Comprehensive Outdoor Recreation Plan (SCORP), public demand for big game hunting and sport fishing opportunities will continue to exceed the supply through 1990. It is implied in the SCORP that maintaining the present quality of big game hunting and sport fishing desired by

TABLE 2-26

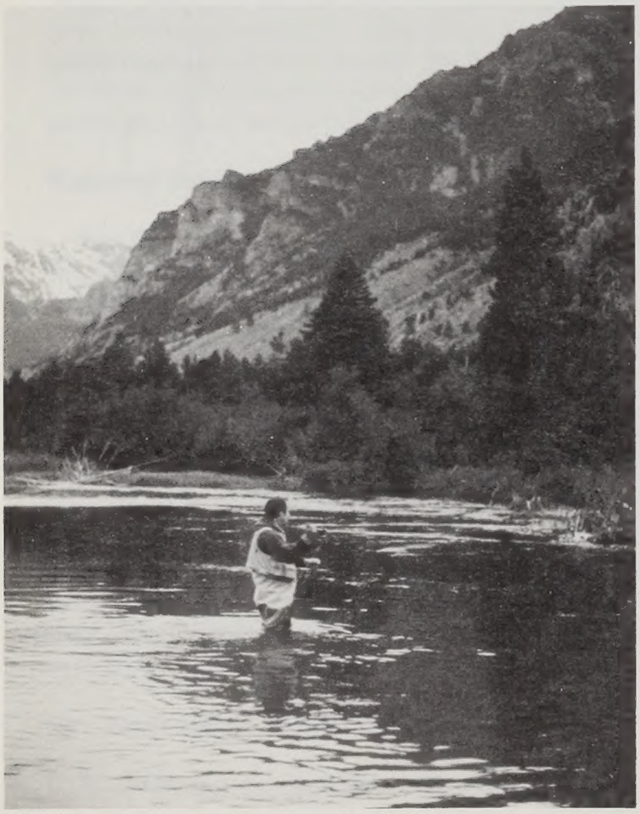
ORIGIN OF NONRESIDENT SUMMER VISITORS IN THE MADISON RIVER CORRIDOR AND ON OTHER PUBLIC LANDS

State or Province of Origin	Percentage
Madison River Corridor Visitors	
California	30
Utah	7
Colorado	7
Idaho	6
Washington	4
Illinois	4
Arizona	4
Indiana	3
Nevada	3
Texas	3
Wyoming	3
New Jersey	3
Alberta	2
Nebraska	2
Oregon	2
Other	17
Visitors to Other Public Lands Surveyed	
California	29
Idaho	22
Utah	20
Washington	6
Oregon	5
Colorado	3
Wisconsin	3
Alberta	3
Other	9

SOURCES: Donald C. Baty, Recreational Use and Resource Analysis of BLM Lands Within the Madison River Corridor (Boulder, CO: Western Interstate Commission for Higher Education, 1977); Andrew C. Epple, Recreation in the Dillon Resource Area (Boulder, CO: Western Interstate Commission for Higher Education, 1977); U.S. Department of the Interior, Bureau of Land Management "The Recreation Area Inventory System (RAIS)," Dillon, MT: 1978. (Typewritten.)

14. Centennial Mountains

Along with outstanding scenery, visitors to the study area can enjoy hiking, camping, hunting, fishing, and wildlife observation.



15. Fly Fishing

16. Rafting

Good fishing and rafting help account for 32,000 recreational visits per year to area streams and lakes.

the public beyond 1990 would require the implementation of more stringent regulations or other methods designed to maintain sufficient supplies of game and fish. If supply is not significantly increased, it is further implied that if the present level of quality for these opportunities is to be maintained, a much smaller percentage of the total need will be met.

The present level of hunting and fishing regulations and the anticipated implementation of more stringent regulations beyond 1990 indicate that public demand for these activities currently exceeds the existing supply of big game and sport fish, and that the present supply deficit will drastically increase beyond 1990. If lands administered by BLM are to assist in meeting future needs, the quality and quantity of fish and wildlife habitat must be substantially expanded. Equally important are the natural amenities provided by improved habitat. Such amenities are needed to satisfy the public's preference for recreating in natural, pleasant surroundings.

SCENIC VALUES

The Dillon Resource Area is within the "Broad Valley Rockies" physiographic region (USDA, FS 1979a) and is characteristic of this type of landscapes. Mountain ranges are separated by broad plains of sagebrush and grassland, rolling hills, tree-lined bottoms, and some flat areas and areas of sparse vegetation. Land use includes livestock grazing and some farming, primarily hay and grains, in valley bottoms. Scenery quality varies from high to average. The most scenic areas are rugged mountains, river gorges and tree-lined bottom areas. Areas of rolling sagebrush hills and grassland are considered of less scenic value.

Management units were defined with the use of the Visual Resource Management (VRM) system. Various management objectives must be met in these management units in order to maintain scenic values. Visual change may occur within these units that would modify the existing landscape. The change is measured by using contrast ratings that indicate how much a structure or activity can be seen. If the degree to which a structure or activity can be seen does not exceed the management objective, that change is considered to be acceptable.

As more fully discussed in chapters 1 and 3, livestock grazing or related developments should not prevent maintenance of scenic values in accordance with unit management objectives. However, changes to the landscape from grazing activities can result in changes in scenic value. Such changes cannot be measured through contrast ratings because they cannot be contrasted with themselves. That is, no contrast is perceivable through viewing an area, although a change in aesthetic appreciation may occur. From this standpoint, within the study area the existing riparian landscapes may be considered to be below average; upland areas average; and mountain/forested areas somewhat above average in regard to scenic values.

CULTURAL RESOURCES

Approximately 472 prehistoric or historic sites have been documented in the study area. Of these, 326 are known to be located at least partially on public lands. The condition, integrity, and significance of these sites have yet to be sufficiently addressed.

Predictions derived from a sampling type inventory conducted over the public lands of the study area in 1977 indicate that the expected number of sites on public land is about 1,900. Because of the small sample size, the margin of error of this prediction is so large that it precludes development of useful information.

A total of 17 properties in the four-county area either are listed on the National Register of Historic Places or have been determined to be eligible for the register (Federal Register 44, no. 26, February 6, 1979). However, nine of the properties are in the cities of Butte, Anaconda, and Dillon. Of the remaining eight, only Bannack Historic District contains any public lands.

LIVESTOCK GRAZING

Within the EIS study area, 268 operations, including grazing associations, hold permits to use 954,626 acres of public lands for grazing. (Appendix 6 describes the organization of grazing associations.) These operations use 404 grazing allotments, with a permitted us of about 125,000 animal unit months (AUMs) of forage annually. Grazing management on the existing 404 allotments includes the following grazing systems: 26 rest-rotation, 1 deferred, 3 deferred rotation, 13 alternate rest, and 361 seasonal (see chapter 1, table 1-9). In addition, there are 157 unallotted areas where livestock grazing is not permitted. The present annual harvest is consumed by 27,227 cattle, 11,411 sheep, and 6 horses.

Since kinds of livestock and topography vary, there is a wide variance in management practices among livestock operations in the area (see the discussion on economics in the "Socioeconomics" sections). Most ranches run a cow/calf pair operation and sell fall weaner calves. However, some operators hold over weaner calves and run them as yearlings or replacement heifers. About 5 to 10 percent of the annual calf crop is usually retained as replacement heifers. Breeding season usually runs from about mid-May to mid-June; thus, calving begins around mid-February and continues until about the end of March. Weaner and/or yearling calves are usually sold in October and November. Some operators run purebred or exotic herds, but crossbreeding is most common. Cattle are the predominant kind of livestock in the study area, although sheep and horses also graze some public lands (see table 2-27).

Because management practices vary widely among livestock operators, seasons of use vary considerably, ranging from a few weeks or months to yearlong grazing. However, the critical grazing problem is that public land needs to furnish spring grazing. Most operators have Forest Service allotments that furnish summer grazing, but have inadequate private land for spring grazing. Spring moisture and first snowfall are the major factors that limit seasons of use from year to year.

Appendix 1, "Data on Individual Allotments," lists the existing livestock forage productivity (AUMs of usable forage) on public land in the study area. The total existing livestock forage productivity is 126,929 AUMs on public land. No 25-year or forage potential projections have been made for 332 non-AMP allotments (16,899 usable AUMs), as no intensive management is proposed on these areas.

The 1976-1978 ocular reconnaissancae range surveys show forage production to vary with vegetation type from about 2 acres per AUM to more than 25 acres per AUM. The overall average for current permitted use is about 7.2 acres per AUM. The variance in annual forage production can create stress on the preferred grazing areas and the more palatable species. With successive drought years, reduced production can lead to reduced livestock performance. Ultimately, plant vigor and seed production can be retarded to the point that recovery will occur only under intensive management and favorable growing conditions.

Total livestock populations in the study area as of January 1, 1976, were estimated at approximately 285,000 cow/calf pairs and 40,000 stock sheep and lambs (Montana Department of Agriculture and U.S. Department of Agriculture [Montana Ag. Stat.] 1976). These figures indicate a decrease in sheep and an increase in cattle from 1974, as shown in table 2-28. With sheep numbers decreasing, the total of cattle animal units in the study area increased about 3 percent from 1974 to 1976.

Cattle numbers reached a record peak in 1974 (Montana Ag. Stat. 1976). Sheep populations have been decreasing since the 1930s and 1940s, with a fairly steady downward trend since 1960. These trends apply to the entire state, and it is assumed they would be applicable to the study area. Future trends of cattle populations are totally speculative; however, it appears that sheep populations will continue to decline because of limited predator control programs and increased production costs such as those for labor and fencing.

On the basis of 1976 population estimates, the study area has a total of 293,000 animal units. This number would require 3,516,000 AUMs of forage and supplements annually. BLM records indicate that a present permitted use of 125,377 AUMs is harvested annually from public lands in the study area. These AUMs represent only about 4 percent of the total livestock operations in the area, so the BLM-managed public lands obviously are not a major source of livestock forage; however, most operators depend on public lands for forage during the critical spring period.

The 1976-1978 ocular reconnaissance rangeland inventory is the basis for determining the initial stocking level on 470 allotments. Utilization, trend in range condition, and actual use data are used to determine the initial stocking level on 48 existing and revised AMPs. Appendix 2, "Methodology for Determining Livestock Forage Allocation and Stocking Rates," is a detailed explanation of how present livestock forage productivity was determined. Figure 1-2, which is a summary of Appendix 2, shows that 110,033 AUMs (or 19 percent) of the current annual production on public land will be allocated to livestock. Within AMP allotments, approximately 14 percent (191,800 acres) of the total acreage has been classified as unsuitable for livestock grazing through the ocular reconnaissance range survey.

Potential livestock forage productivity for the existing, revised, and proposed AMP allotments is estimated at 212,684 AUMs (see subtotal, table 2-29). This level will be used for comparative pur-

TABLE 2-27

KIND OF LIVESTOCK OPERATIONS BY MANAGEMENT STATUS

Management Status	Number of Allotments	Kind of Livestock					
		Cattle	Sheep	Cattle and Sheep	Cattle and Yearlings	Yearlings	Horses
AMPs	48	43	1	1		3	
Non-AMPs	356	331	6	10	5	3	1
Total	404	374	7	11	5	6	1

SOURCE: BLM, 1979.

TABLE 2-28

ESTIMATED LIVESTOCK POPULATIONS OF EIS AREA

Kind	1974	1975	1976	Percentage of Change
Cattle and calves	273,000	277,000	285,000	+ 4.2
Stock sheep and lambs	47,000	42,000	40,000	- 14.9

SOURCE: BLM, 1979.

NOTE: All figures are based on data from Montana Department of Agriculture and U.S., Department of Agriculture, Statistical Reporting Service, Montana Agricultural Statistics (1976). Livestock figures are estimated as of January 1 of each year and based on mean values.

TABLE 2-29

LIVESTOCK FORAGE PRODUCTIVITY ON PUBLIC LAND

	BLM Only (AUMs)					
	Range Survey					
Management Status	Total	Usable[a]	Current Permitted Use	Initial Stocking	25-Year Projection	Forage Potential
Existing AMPs	40,737	26,986	24,434	26,504	33,212	57,575
Revised AMPs	26,183	19,259	19,853	17,946	21,417	37,639
Proposed AMPs	79,682	63,785	61,664	49,122	75,995	117,470
Subtotal	146,602	110,030	105,951	93,572	130,624	212,684
Non-AMPs[b]	22,193	16,707	19,155	16,461	16,461	16,461
Unallotted areas[b]	2,523	192	271	0	0	0
Subtotal	24,716	16,899	19,426	16,461	16,461	16,461
Study area total	171,318	126,929	125,377	110,033	147,085[c]	229,145

SOURCE: BLM, 1979.

[a] The number of AUMs of usable livestock forage, as established by range survey, is considered the existing livestock forage productivity.

[b] Since the recent soil survey is incomplete and no intensive management is proposed on these allotments, it is assumed that 25-year and forage potential projections would be the same as the initial stocking level.

[c] This figure is total livestock AUMs produced. Based on the proposed allocation level, 141,897 AUMs would be allocated to livestock.

poses, as non-AMP and unallotted area projections remain constant. The 212,684-AUM figure represents the expected potential that the public lands in the study area are capable of producing under optimum conditions, given climax or near climax vegetation and good or excellent range condition. Potential production by allotment is shown in Appendix 1 and summarized in table 2-29. Estimates were made by using part II of the Soil Conservation Service Range Technicians' Guide, range site information in recent soil surveys, and average annual precipitation. Good or excellent range condition was assumed on all allotments to estimate the potential.

THE SOCIOECONOMIC ENVIRONMENT

EXISTING SOCIAL AND ECONOMIC CONDITIONS

The socioeconomic study area differs somewhat from the EIS study area. The socioeconomic area includes all of Deer Lodge and Silver Bow counties, whereas the EIS area includes only portions of these two counties. All of Deer Lodge and Silver Bow counties were included because two of the major cities in these two counties, Butte and Anaconda, are major trade centers for the area. The focus of the analysis, however, is on the ranch families who are directly affected by the proposed action. Virtually all of these families are located in Madison and Beaverhead counties.

Existing Social Conditions

Population

The estimated population of this four-county area in 1975 was 72,300, with the largest number of people (81 percent) living in Deer Lodge and Silver Bow counties. As shown in table 2-30, it is projected that by 1980 this population will have decreased slightly, to 72,254. However, the population is projected to increase by 11 percent by the year 2000, to 80,432. It is expected that the distribution of population among the counties will change little between now and the turn of the century (Montana, Department of Community Affairs 1977).

It is estimated that 1,340 persons are associated with ranches that have BLM grazing privileges in the study area. This estimate is based, in part, on the size of the average Montana family, 3.63 persons (U.S., Dept. of Commerce, Bureau of the Census [USDC, Census] 1970). This group of directly affected people, therefore, amounts to a little less than 2 percent of the four-county area population.

Social Well-being and Attitudes

Views and attitudes of 105 people in the socioeconomic impact area were surveyed by the BLM in May 1979. The results of this survey were published by the BLM in a paper entitled *Social and Natural Resource Views of Dillon Resource Area Residents*. It contained an analysis of views and attitudes that had been expressed at public participation meetings on the *Mountain Foothills Management Framework Plan* (MFP). This and other studies conducted on the rural West were used to develop this section.

The first livestock grazing in this area was in the Beaverhead and Deer Lodge valleys in 1858. These valleys were used as winter ranges for cattle that Richard Grant and his sons (early settlers) had received in trade from the emigrant wagon trains headed to the Northwest (Granville 1977). Livestock grazing increased in the early 1860s with the discovery of gold in Beaverhead and Madison counties. After the gold rush, many ranchers remained. The families of some ranchers currently operating in the study area arrived at the time of the gold rush; thus, not only is there a long tradition of ranching in the area, but some families have been associated with a ranching way of life for generations.

Ranchers and their families in this area exhibit attitudes and values typical of any rural ranch-oriented society in the western United States. They place strong emphasis on independence, self-reliance, integrity, and hard physical work. Many of these values were handed down from pioneer settlers.

Ranchers' attitudes toward their land have been categorized by one sociological study (Smith and Martin 1972) as "land fundamentalism." This concept is described as "the attitude that a greater amount of satisfaction can be received from associating directly with the physical environment rather than with the man-made!" Characteristic of this study (and similar attitude surveys) are the following expressions of values assigned to landownership: feeling close to the earth; being independent; living in a desirable place to raise children, away from urban influences—a place where one can return to and hold the fundamental values of honesty, integrity, independence, and a sense of "roots," of belonging. The value of owning land for its own sake is fundamental.

Generally, ranchers and their families distrust bureaucracy and suspect its motives. An agency such as the BLM, which regulates the public lands that ranchers utilize, is often viewed as threatening to their independence; its integrity often is questioned.

With livestock ranching being a long established and accepted way of life in this area, actions by government that disrupt this "status quo," whether real or perceived, are viewed with extreme alarm. While the BLM views these actions as necessary and important, the ranching community often views them as a threat to their very existence and ranch-related lifestyle.

TABLE 2-30

CURRENT POPULATIONS OF COUNTIES AD TOWNS IN THE STUDY AREA

Location	1950	1960	1970	Projected for 1980[a]	Percentage of Change 1950 to 1980
Beaverhead County	6,671	7,194	8,187	8,703	+ 30.5
Dillon	3,268	3,690	4,548	4,870	+ 49.0
Lima	483	397	351	382	- 20.9
Deer Lodge County	16,553	18,640	15,652	14,839	- 10.4
Anaconda	11,254	12,054	9,771	9,417	- 16.3
Madison County	5,998	5,211	5,014	5,602	- 6.6
Ennis[b]	U	525	501	674	--
Sheridan	572	539	636	727	+ 27.1
Twin Bridges	497	509	613	569	+ 14.5
Virginia City	323	194	149	174	- 46.1
Silver Bow County	48,422	46,454	41,981	43,110	- 11.0
Butte	33,251	27,877	23,368	24,215	- 27.2
Walkerville	1,631	1,453	1,097	1,139	- 30.1
County Total	77,644	77,499	70,834	72,254	- 6.9
Total, All Incorporated Cities	51,279	47,238	41,034	42,167	- 17.7

SOURCES: U.S., Department of Commerce, Bureau of the Census, 1950, *Census of Population*, vol. 2: *Characteristics of the Population*, part 28: Montana; 1960, 1970, *Census of Population*, vol. 1: *Characteristics of the Population*, part 28: Montana. Montana, Department of Community Affairs, *Montana Population Projections, 1975-2000*. Prepared by Division of Research and Information Systems. (Helena, MT, 1977).

a. This population estimate is from *Montana Population Projections*, cited above.

b. Ennis was unincorporated in 1950.

Attitudes toward allotment management plans (AMPs) are varied. Some ranchers view them as a good thing both for the land and for themselves. This attitude is especially prevalent when the plan involves no grazing reductions, with the possibility of substantial increases in livestock grazing through range developments (fencing, water development, vegetation manipulation). Some ranchers view AMPs as an attempt by the BLM to gain control over their ranching operation. In many instances, ranchers are more concerned with the fact that the BLM is taking the action than they are with the action itself.

Members of environmental, wildlife, and sportsmen's groups, while sympathetic with the fact that ranch families must make a living off the land, feel strongly that because the BLM-administered lands are public, they should be preserved and enhanced for their wildlife values, scenic and aesthetic qualities, and recreation potential.

Attitudes toward Grazing Resources

The survey of 105 people in the study area revealed some attitudes of the general public concerning livestock grazing and BLM grazing management.

In Deer Lodge and Silver Bow counties, 23 respondents were generally divided on the question of whether BLM lands were overgrazed or in good condition. In Beaverhead County, nearly half of the 52 respondents felt that there were no important problems caused by livestock grazing of public lands. A few did not feel they were familiar enough with the situation to comment. Of the other half, about two-thirds expressed a favorable view toward enhanced livestock grazing; while the other one-third felt that either the lands were being overgrazed or too much emphasis was being placed on livestock at the expense of wildlife.

With respect to BLM management, respondents in Beaverhead County expressed some concerns and criticisms. One individual expressed the view that the BLM hired outsiders lacking in "common sense." Other individual criticisms included the view that the BLM favored ranchers while keeping others off the land, that there was too much government interference with ranchers and within government, and that there were too many stumbling blocks to effective land management.

In Madison County, 30 persons were interviewed. Opinion was diverse on area grazing resources. Three persons had no opinion and four others saw generally good conditions or no problems. Four persons commented that BLM grazing lands were in satisfactory or improving condition.

Most interviews did not provide clear statements of satisfaction or dissatisfaction, but they revealed the following suggestions and concerns. Seven persons said they thought there was not enough grazing land in the area to meet the demand. In contrast, one person said there would be plenty of grazing land if it was properly developed. Four respondents were concerned that most of the grazing land seemed to be in the hands of a few people and that large investors were squeezing out the small rancher.

Six comments called for stronger control over grazing on public lands. One person felt that the BLM should develop longer-term leases, but three others felt that leases should remain as they are. Two of those interviewed saw BLM lands as overgrazed, and two others saw them as underused. Three persons commented that BLM grazing privileges are underpriced and constitute a grazing subsidy. One suggestion was made for combined grazing management of national forest and BLM lands. One person complained that ranchers try to keep people off the public lands.

Existing Ranch-Related Economic Conditions

Ranch Operations and Related Income

At the end of 1974, there were 822 ranch operations in the four-county study area (USDC, Census 1974). There currently are 268 individual ranch operations with BLM grazing privileges. Also, many ranchers lease BLM grazing through nine grazing associations. The operations in the Waterloo Cooperative State Grazing District and the Wise River Stock Association are permitted on an individual basis; they are included in the 268 individual operations.

Numbers of ranches would not be expected to change very much, so it could be concluded that operations involving BLM lands make up approximately one-third of the study area total. Fifty-two of the 268 operations have 24 or fewer BLM AUMs. The dependency of these operations on BLM forage and the potential impact of grazing adjustments on their operations is not considered significant. The analysis, therefore, concentrates on the 216 remaining ranch operations.

So that the economic dependency of ranch operations on BLM forage could be identified and the potential economic impact of grazing adjustments could be analyzed, the 216 ranch operations were grouped into categories according to ranch size and type of livestock raised. Although there are a few operations that raise sheep along with cattle, the predominant type of ranch is a cow/calf/yearling operation. Almost all ranches hold some calves over to be sold as yearlings. Generally, the larger the number of cattle, the larger the percentage of calves held over to be sold as yearlings. Livestock is usually the only enterprise on these ranches, with virtually no hay or grain being sold as a cash crop.

Table 2-31 indicates that the ranches fall in four basic categories when measured in terms of the number of brood cows. Where sheep are involved, the total number has been converted to equivalent cattle numbers. Almost 40 percent of the ranches fall in the medium commercial category (200 to 499 brood cows).

Dependency of ranch operations on BLM forage is determined by a combination of several factors: the percentage of the total required ranch forage that BLM land provides, the season that BLM forage is supplied, and the availabiltiy of substitutes for BLM forage. The percentage is the primary indicator, and table 2-31 shows the dependency in terms of the average and the number of ranches in each of the percentage categories. No ranch in the study area is more than 60 percent dependent on BLM forage for its total grazing requirement, and 29 ranches are from 21 percent to 60 percent dependent.

Table 2-32 shows that the 216 ranches generate $40,532,440 in gross revenue annually in the study area, and they also generate $17,615,820 in net cash income. When the allowance for depreciation is subtracted from net cash income, the total income generated by these ranches is $14,704,220. This is the amount available to the operators and their families for their labor and management and return to their equity capital investment. Revenue and income per ranch were estimated by formulation of a budget for a representative ranch of average size for each of the four size categories (Appendix 22). Revenue and income for each ranch were then aggregated to determine total amounts for the study area.

The total number of families and the extent to which each is dependent on the net income from its ranch is difficult to determine. An estimate can be made, however, on the basis of general information concerning ranch ownership, operations, and off-ranch employment.

About 4 percent (9) of the 216 ranches are family operations with a member of the family working off the ranch at least part of the time. Small commercial ranches (1 to 199 brood cows) are usually involved in this type of operational arrangement. About 6 percent (13) of the 216 ranches are operated by a hired manager, with the owner being a professional or business person or a non-family corporation. The very large commercial ranches (1,000 or more brood cows) are usually this type of operation. The majority, about 90 percent (194) of the 216 ranches are one, two, or three family operations, with no off-ranch employment or businesses. Thus, it is estimated that 322 families (1,060 persons of the 1,340 associated with ranches) depend on these ranches for their primary source of personal income.

As table 2-32 indicates, on the basis of 1978 prices the representative ranch in each size category earns enough income to cover cash operating cost and depreciation. A net ranch income of $6,340 annually per ranch in the small commercial size category is only enough to pay the operator and his family minimum wages, with no return to their equity capital investment. As has been indicated, a few of these ranch operators and their families are employed off the ranch to supplement their income. If they do not have off-ranch employment and the net ranch income is not enough to cover family living expenses, then they usually, at least in the short run, allocate money from the depreciation allowance. In this situation, they must live with deteriorating equipment and improvements and borrow on their equity investment when replacement becomes unavoidable.

Income to owners and their families in the other three ranch size categories depends upon how many families depend on each ranch operation and how net income is allocated between labor and management and return on equity capital investment.

For example, if three families depend on a large commercial ranch (500 to 999 brood cows), and if $10,000 is allocated to each family for its labor and management, then this would leave $54,180 annually for return to equity capital investment. Ranches with the capability of running 625 brood cows have a market value of about $1 million. Information gathered for the representative budgets indicates that long-term borrowed capital averages $312,500 for this size of ranch opera-

TABLE 2-31

ESTIMATED CURRENT DEPENDENCY OF RANCHES ON BLM GRAZING

Ranch Size Category[a]	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches[b] / Percentage of Dependency[c]							Average Percentage of Dependency
			0-10%	11-20%	21-30%	31-40%	41-50%	51-60%	Total	
			(ranches)	(ranches)	(ranches)	(ranches)	(ranches)	(ranches)	(ranches)	
Small commercial	1-199	130	26	15	6	1	1	1	50	13.0%
Medium commercial	200-499	325	60	15	5	2	1	1	84	12.5%
Large commercial	500-999	625	32	13	6	1	0	0	52	12.9%
Very large commercial	1,000 or more	2,000	23	3	4	0	0	0	30	7.0%
Total			141	46	21	4	2	2	216	

SOURCE: BLM, 1979.

a. About 94 percent of the ranches are cow/calf/yearling operations. Those involving sheep have been converted to equivalent cattle numbers.

b. Ranches in the study area that lease more than 24 BLM AUMs each. In addition to these, 52 operators lease fewer than 24 BLM AUMs each. Their dependency is considered insignificant.

c. Percentage of total seven-month grazing requirements provided by BLM forage.

TABLE 2-32

ESTIMATED CURRENT RANCH INCOME BY RANCH SIZE

Ranch Size Category	Number of Brood Cows	Number of Ranches	Average Number of BLM AUMs per Ranch	Annual Gross Revenue		Annual Net Cash Income		Annual Net Income[a]	
				Average per Ranch	All Ranches	Average per Ranch	All Ranches	Average per Ranch	All Ranches
Small commercial	1-199	50	133	$ 39,230	$1,961,500	$ 13,540	$ 677,000	$ 6,340	$ 317,000
Medium commercial	200-499	84	363	107,110	8,997,240	49,690	4,173,960	41,290	3,468,360
Large commercial	500-999	52	625	205,050	10,662,600	97,180	5,053,360	84,180	4,377,360
Very large commercial	1,000 or more	30	1,581	630,370	18,911,100	257,050	7,711,500	218,050	6,541,500
Total		216			$40,532,440		$17,615,820		$14,704,220

SOURCE: BLM, 1979.

NOTE: Revenue and income are at present BLM AUM use level and 1978 price level.

[a] Annual net income equals annual net cash income minus depreciation. It is personal income available to the operator and family for labor and management and return to equity capital investment.

tion. The owner's equity capital is therefore $687,500, with the return on investment being about 8 percent.

The operators and their families have another source of ranch income, but this can be realized only if the ranch is sold. Over the past five years, farm real estate values have increased on an average of 12.33 percent annually in Montana (USDA, Economic, Statistics, and Cooperatives Service 1979). For a ranch with a market value of $1 million, this means an appreciation in value of $123,300 annually. Adding this amount to a net income of $54,180 results in an effective rate of return to equity capital investment of 26 percent.

Permit Value

Ranchers in the study area, BLM appraisers, and the Bozeman Federal Land Bank, Dillon Branch, estimate the market value of a BLM grazing permit to average approximately $90 per AUM. Permit value can be viewed as BLM AUM contribution to total ranch value. A $90 per AUM permit value calculates to a cost per AUM of $9.61. This is based on an opportunity cost of capital of 9 percent, plus the grazing fee of $1.51 ($90 x 9 percent = $8.10 + $1.51 = $9.61). As table 2-33 shows, the total permit value for BLM forage leased to 216 individual ranches in the study area is approximately $10,536,480. Thirty very large commercial ranches have the highest permit values of the four ranch size categories; their total is $4,268,700.

Employment and Public Finance

The grazing adjustments of the proposed action and alternatives would have an indirect effect on the number of livestock on the 216 ranches in the study area. Since livestock are assessed for payment of property taxes, changes in livestock numbers have an effect on tax income to local government.

It is estimated that $490,000 was paid in 1978 in property tax for livestock on the 216 ranches in the study area. This figure is based on an estimated assessed valuation of $30,625,000. The total assessed valuation for cattle and sheep in Beaverhead, Madison, Silver Bow, and Deer Lodge counties was $52,492,653 in 1978 (Montana, Department of Revenue 1978). Thus, assessed valuation of livestock on ranches with BLM lands is approximately 58 percent of the total assessed valuation for livestock in the study area.

A study in the EIS area (Appendix 22) determined that one work-year equivalent of hired labor was required for every 265 brood cows in the representative ranch size categories. Thus, hired ranch employment for the 216 ranches is estimated to be the equivalent of 480 fulltime employees.

Existing Regional Economic Conditions

Earnings

Total earnings in the study area increased by 42 percent from 1972 to 1976. Deer Lodge and Silver Bow counties, the two most urbanized counties, experienced the greatest gains in personal earnings during this period. Table 2-34 shows that earnings in the study area increased slightly less, in percentage terms, than did earnings for the state as a whole during the period 1972 to 1976 (42 percent versus 48.5 percent). Silver Bow County accounted for the majority (an average of 62 percent) of the study area earnings from 1972 to 1976. This was primarily due to Silver Bow County's relatively well-developed wholesale and retail trade, government, and transportation/public utility sectors.

The four-county study area contributed approximately 9 percent to the state's total earnings during the period 1972 to 1976. Both Madison and Beaverhead counties, the two more agriculturally oriented counties, had high agricultural earnings in 1973. This resulted from high agricultural production, coupled with high agricultural prices (tables 2-34 and 2-35). Overall, it appears that the percentage of earnings attributable to agriculture has declined in the study area, as well as in the entire state, in the recent past.

Employment

Total employment in the study area increased only slightly during the period 1972 to 1976, although an employment peak of 29,296 occurred in 1974 (table 2-36). The region contributed a fairly consistent percentage to total state employment during this period, but the percentage fell slightly in 1975 and 1976. The percentage of total workers engaged in agriculture declined in the study area and in the state during the period 1972 to 1976 (table 2-37), reflecting a similar national trend.

Both Madison and Beaverhead counties had a much higher percentage of farm workers than either Silver Bow County or Deer Lodge County during this five-year period. Madison County's

TABLE 2-33

ESTIMATED CURRENT PERMIT VALUES

Ranch Size Category	Number of Brood Cows	Number of Ranches	Average Permit Value per Ranch	Total Permit Value
Small commercial	1 to 199	50	$ 11,970	$ 598,500
Medium commercial	200 to 499	84	32,670	2,744,280
Large commercial	500 to 999	52	56,250	2,925,000
Very large commercial	1,000 or more	30	142,290	4,268,700
Total[a]		216		$10,536,480

SOURCE: BLM, 1979.

NOTE: Permit values are calculated at $90 per AUM.

[a] In addition to the ranches included here, nine grazing associations lease 6,785 AUMs with a total permit value of $601,650.

TABLE 2-34

TOTAL STUDY AREA EARNINGS

($000)

County	1972	1973	1974	1975	1976	Percentage of Change 1972-1976
Beaverhead	31,646	40,910	37,775	38,455	44,130	+39.4
Deer Lodge	54,099	60,822	69,838	77,543	81,503	+50.7
Madison	17,261	23,322	21,057	22,449	21,442	+24.1
Silver Bow	168,534	190,366	209,329	228,357	238,440	+41.5
Study Area total	271,540	315,420	337,999	366,804	385,515	+42.0
State of Montana	2,884,631	3,465,747	3,665,993	4,017,729	4,284,017	+48.5
Study Area as percentage of state	9.4	9.1	9.2	9.1	9.0	

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis 1979.

NOTE: Earnings are shown by county of residence. Amounts shown include personal earnings, dividents, interest, rents, and transfer payments.

TABLE 2-35

AGRICULTURAL EARNINGS AS A PERCENTAGE OF COUNTY TOTAL

($000)

County	1972	1973	1974	1975	1976
Beaverhead	28.9	38.0	20.1	12.7	17.8
Deer Lodge	1.4	1.8	a	0.3	0.5
Madison	24.3	32.5	15.1	13.4	a
Silver Bow	0.2	0.4	0.3	a	a
State of Montana	12.8	17.4	11.4	9.9	6.9

SOURCE: U.S. Departmemt of Commerce, Bureau of Economic Analysis, 1979.

a. Agricultural sector income data for this year are considered unreliable.

ratio of agricultural workers to total workers in 1976 was approximately three times that of the state as a whole and 20 times that of Silver Bow County. It should be noted that the figures in tables 2-36 and 2-37 may slightly understate actual total employment levels because temporary, transient farm workers are sometimes not counted.

TABLE 2-36

TOTAL STUDY AREA EMPLOYMENT

($000)

County	1972	1973	1974	1975	1976	Percentage of Change 1972-1976
Beaverhead	3,041	3,060	3,324	3,219	3,229	+6.2
Deer Lodge	6,303	6,165	6,549	6,421	6,077	-3.6
Madison	2,222	2,318	2,444	2,320	2,318	-4.3
Silver Bow	15,853	16,586	16,979	16,132	15,855	--
Study Area total	27,419	18,129	29,296	28,092	27,479	+0.2
State of Montana	300,504	309,930	320,425	318,608	327,251	+8.9
Study Area as percentage of state	9.1	9.1	9.1	8.8	8.4	

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis 1979.

NOTE: Earnings are shown by county of residence. Amounts shown include personal earnings, dividends, interest, rents, and transfer payments.

TABLE 2-37

AGRICULTURAL EMPLOYMENT AS A PERCENTAGE OF COUNTY TOTAL

($000)

County	1972	1973	1974	1975	1976
Beaverhead	24.7	23.6	22.2	20.5	18.4
Deer Lodge	2.0	1.8	1.6	3.1	1.5
Madison	35.1	33.4	32.9	31.7	29.1
Silver Bow	0.9	1.5	0.9	0.8	1.4
State of Montana	12.7	12.1	11.9	11.2	10.2

SOURCE: U.S. Departmemt of Commerce, Bureau of Economic Analysis, 1979.

ENVIRONMENTAL CONSEQUENCES

CHAPTER 3

OVERVIEW

This chapter documents the environmental consequences of the proposed action and the alternatives. The discussion will cover the significant environmental values outlined in chapter 2, with the exception of the "Climate and Air Quality," "Geology and Topography," and "Mineral Resources" components, where it has been determined that no significant impacts would occur.

Each component was analyzed by determining the effect of all elements of the various actions upon that component. The potential for environmental consequences depends on the implementation or nonimplementation of the several grazing systems and the attendant range developments, as outlined in chapter 1.

As necessary to support the comparison of the several alternative grazing management actions, the component discussions will include the environmental impacts of the proposed action and alternatives, mitigation not discussed in chapter 1, residual adverse effects, short-term use versus long-term productivity, irreversible or irretrievable resource commitments, and land use conflicts.

Basic assumptions were made to facilitate analysis, to adhere to basic policy, and to measure the effect of the proposed action and the alternatives. The assumptions used in the analysis are as follows:

1. The Bureau of Land Management will have the funding and staff to implement the AMPs and manage the allotments.

2. All range developments, vegetation manipulation, and grazing systems will be implemented within four years of approval.

3. The BLM will receive sufficient funding to maintain new and existing developments and to make revisions in AMPs as necessary.

4. The BLM will verify the level of impacts and monitor the AMPs for the purpose of making necessary adjustments in plans that are not meeting the desired multiple use objectives.

5. Short-term effects are those that would occur during AMP implementation (1980 through 1984). Long-term consequences are those projected to be in effect when AMP objectives are met (approximately the year 2010).

6. Newly implemented grazing systems would be adhered to through at least one complete cycle. Unauthorized livestock use would be strictly controlled and would not be a significant impact-causing agent.

7. Allocation of additional forage resulting from improved grazing management would generally be at the same level as the existing allocation (about 20 percent of the total annual vegetation production allocated to livestock, with the remaining 80 percent allocated to watershed, wildlife, and other consumptive and nonconsumptive uses).

8. With the proposed action, current permitted use in the study area would increase about 14 percent by the year 2010, while the proposed initial stocking level would increase about 28 percent. The methodology used to project the stocking rates is discussed in Appendix 2.

9. Through consolidation of allotments in the proposed action, the 561 existing allotments would be reduced to 518. With this large number of allotments, it became necessary to aggregate the data by management status and grazing system in order to make the analysis workable and easily understood. This aggregation system was used primarily for the soils, wildlife, and vegetation components. Other components, such as cultural resources, recreation, and socioeconomic conditions, where data were collected by other parameters, could not always be analyzed in the same fashion.

A general comparison of the short-term and long-term environmental consequences of the proposed action and alternatives is presented in table 1-9, chapter 1.

SOILS

Erosion

Close or repeated cropping of vegetation annually by livestock ultimately causes a depletion of food reserves and the death of the plant, which results in areas of bare soil. These bare spots occur naturally and should be small and well dispersed. However, when plant cover is greatly reduced, sheet, rill, gully, and wind erosion are usually apparent.

Accelerated erosion is most evident where rills and gullies are present on the surface of the soil, but erosion may be very rapid and still not be recognized, where replacement from upslope makes up for what is displaced below.

The grazing animal also causes erosion by its mere presence on the range. Trampling causes the surface soil to be moved consistently downslope. Trampling displacement is a form of erosion similar to water erosion. Like water erosion, trampling displacement is more evident as slopes increase. This form of erosion occurs most readily when the soil is very wet or very dry. According to Agricultural Handbook 19 (USDA, FS 1951), "Almost any grazing on slopes is bound to cause soil displacement . . . Some slopes because of their steepness and character of soil are particularly susceptible. It may well be doubted whether on slopes of such instability there should be grazing by domestic livestock."

Soil associations 5 and 7 shown in the map supplement (approximately 6 percent of the study area) are examples of these susceptible soils in the study area.

The significance of accelerated erosion is the loss of vegetation productivity on site, as well as off-site damage from resulting sedimentation. On similar soils in the study area, Munn and Meuggler (1976) found that there is a 0.89 partial correlation between total productivity and thickness of the mollic epipedon (surface soil). Therefore, as the surface soil is eroded away, the total vegetation productivity could suffer as a result.

Except for winter grazing when plants are dormant and adverse impacts minimal, grazing systems that incorporate rest are generally preferable to annual season-long use in terms of erosion. However, at least one report (Gifford and Hawkins 1976) indicated that a search of pertinent literature "failed to show that any grazing system consistently or significantly increases plant and litter cover on watersheds. For all practical purposes there is no information available on the impact of rest-rotation systems on watershed cover . . . ."

A. The Proposed Action

On the basis of watershed analysis of the projected increases in vegetation cover from improved range condition in the long term (see Appendix 24), critical, severe, and slight erosion would decrease by 3 percent and moderate erosion would decrease by 14 percent. The net result would be a 3,776-acre decrease in critical and severe erosion and a 63,538-acre increase in the stable and slight erosion condition classes (ECC) (see table 3-1). These improvements should be attributable to better livestock distribution through proposed range developments, a 12.2 percent decrease in AUMs, and less early spring grazing.

An average of 8 percent of the existing, revised, and proposed AMPs and 27 percent of the unallotted areas and non-AMPs are expected to increase in erosion (see Appendix 19). This is due to decreases in vegetation cover, infiltration rates, permeabilities, and organic matter accumulation caused by overallocation of forage. Trampling of moist soils early in the spring also can cause deterioration. AUMs are allocated on almost all of the areas that contain critical and severe erosion within existing, revised, and proposed AMPs. This causes a direct decrease in vegetation cover where it is most needed. However, livestock use after seedripe could actually improve vegetation cover because the trampling of seeds by livestock would enhance seedling establishment.

The unallotted areas and non-AMP allotments were grouped together for discussion purposes because (1) unallotted areas would comprise only 4 percent of the resource area; (2) neither category would be subject to intensive livestock management, and the degree of management is instrumental in the projection of soil surface factor changes through time; (3) most of the unallotted tracts are on steep slopes or have insufficient vegetation cover to warrant livestock grazing—in either case, erosion susceptility is high and some use by ungulates other than livestock would undoubtedly take place.

Where deer and elk winter ranges coincide with livestock grazing, the watershed may not receive adequate rest from ungulate use. However, the quantification of erosion occurring from wildlife use on areas rested from livestock is not known.

TABLE 3-1

FUTURE EROSION CONDITION WITH THE PROPOSED ACTION

Erosion Condition Class[a]	Existing AMPs		Revised AMPs		Proposed AMPs		Non-AMPs		Total[b]	
	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage
Stable	5,144	6,012	756	1,273	27,210	30,232	4,446	5,218	37,556	42,735
Slight	28,919	45,511	17,226	29,276	100,722	124,293	25,749	31,985	172,616	230,975
Moderate	124,715	108,301	89,765	77,987	189,948	165,024	49,414	42,768	453,842	394,080
Critical	34,864	33,932	26,284	25,499	55,625	54,068	9,076	8,838	125,849	122,337
Severe	3,791	3,677	142	138	3,746	3,634	1,120	1,086	8,799	8,535

SOURCE: BLM, 1979.

[a] Unclassified acreage (12 percent), while it applies to the area totals, is not shown here.

[b] Unallotted areas are not included in these figures.

Unfortunately, on the nonrested watersheds only the end results can be seen.

Long-term erosion will be associated with certain range developments such as spring developments, wells, and stock tanks. Because these structures are permanent and are related to water, there would be constant use of the areas. These localized areas would be severely trampled with very little vegetation in their immediate area. Theoretically, the density of vegetation would improve with distance from the structures.

The erosion that would occur from these areas is far outweighed by improved livestock distribution, unless the structures are in drainage bottoms or on slopes that are too steep. In these cases the favorable impact of better livestock distribution could be nullified. Drainage bottoms are natural waterways; bare soils caused by intensive use of these areas would increase accelerated erosion and sediment. Similarly, bared soils on side slopes would invite extensive accelerated erosion damage and loss of productivity.

The net short-term four-year increase in erosion is estimated to be 148,860 tons from 9,617 acres disturbed by proposed range developments. Estimates are based on an average 4.3 tons of soil loss per acre annually for the four-year implementation period for all developments other than sagebrush spraying (see table 3-2). This irretrievable loss is insignificant compared to the general improvement of the range in the study area. Favorable short-term decreases in erosion due to improved grazing systems, stocking rates, and later spring use also would be negligible.

Where deer and elk winter ranges coincide with livestock grazing, the watershed does not receive adequate rest from ungulate use and would continue to suffer residual adverse impacts. Even though rest from livestock grazing is incorporated into many allotments, many of those allotments actually are not rested because they are used by wildlife. The accelerated erosion directly related to wildlife use of areas being rested from livestock has not been quantified, but wildlife may be defeating the purpose of resting portions of many allotments. Erosion condition would be expected to improve in the long term.

B. Limited Action

The short-term increase in erosion is estimated at approximately 25,939 tons (four years) from 1,508 acres disturbed by range developments (see table 3-3).

Long-term impacts would be similar to those of the proposed action except that critical, severe, and slight erosion would decrease by 2 percent and moderate erosion would decrease by 10 percent. The net result would be a 2,515-acre decrease in the critical and severe ECC and a 45,385-acre increase in the stable and slight ECC (see table 3-4).

In contrast to the proposed action, 23 percent of the existing, revised, and proposed AMPs and 27 percent of the unallotted areas and non-AMPs would increase in erosion (see Appendix 19). Similarly, erosion problems would be more acute on deer and elk winter ranges because there would be even less rest from ungulate use than in the proposed action. The amount of erosion attributed to wildlife is unquantifiable; only the end result of all ungulate use can be seen.

The effects of water development on the revised AMPs would be the same as in the proposed action.

Short-term soil disturbance on 1,508 acres due to range developments on revised AMPs during the four-year implementation period would result in an insignificant but irretrievable total loss of about 25,939 tons of soil. Erosion condition would be expected to improve in the long term.

C. Improved Watershed Values and Wildlife Habitat

The net short-term increase in erosion for this alternative is estimated at approximately 83,100 tons (four years) from 6,382.5 acres disturbed by range developments (see table 3-5). However, there would be short-term and long-term increases in infiltration rates and permeabilities on 1,200 acres of soils proposed for chiseling (covered under plowing and seeding). Appendix 12 displays the effects of Alternative C on each allotment.

Impacts would be similar to those of the proposed action except that critical, severe, and slight erosion would decrease by 5 percent and moderate erosion would decrease by 25 percent. The net result would be a 6,292-acre decrease in the critical and severe ECC and a 113,461-acre increase in the stable and slight ECC by the year 2010 (see table 3-6).

Erosion would be expected to increase on 24 percent of the unallotted areas and non-AMPs. However, none of the existing, revised, or proposed AMPs would be expected to deteriorate under this alternative (see Appendix 19).

TABLE 3-2

SHORT-TERM EROSION LOSSES FROM PROPOSED RANGE DEVELOPMENTS IN THE PROPOSED ACTION

Development[a]	Acres Disturbed	Soil Lost (tons per year)
Fencing	193.0	830
Pipelines	10.0	43
Cattleguards	0.5	2
Plowing and seeding	1,331.0	5,723
Prescribed burning	6,283.0	27,017
Sagebrush spraying	1,800.0	3,600
Total	9,617.5	37,215

SOURCE: BLM, 1979.

NOTE: The following assumptions have been made:

Soil lost from disturbed acres is 1.5 acre-feet per square mile per year, or 4.3 tons per acre per year. For areas sprayed for sagebrush control, a figure of 2 tons per acre was used. This figure was based on research by Dennis Phillippi, Range Conservationist, Soil Conservation Service, U. S. Department of Agriculture, Bozeman, Montana.

It takes four years to establish sufficient ground cover to stabilize the erosion.

[a] Spring developments, wells, and stock tanks are considered sources of long-term erosion; refer to the long-term impacts description.

TABLE 3-3

SHORT-TERM EROSION LOSSES FROM PROPOSED RANGE DEVELOPMENTS IN ALTERNATIVE B

Development[a]	Acres Disturbed	Soil Lost (tons per year)
Fencing	17.00	73.0
Pipelines	0.15	0.6
Cattleguards	0.02	0.1
Plowing and seeding	831.00	3,573.0
Prescribed burning	660.00	2,838.0
Total	1,508.17	6,484.7

SOURCE: BLM, 1979.

NOTE: The following assumptions have been made:

Soil lost from disturbed acres is 1.5 acre-feet per square mile per year, or 4.3 tons per acre per year.

It takes four years to establish sufficient ground cover to stabilize the erosion.

[a] Spring developments, wells, and stock tanks are considered sources of long-term erosion; refer to the long-term impacts description.

TABLE 3-4

FUTURE EROSION CONDITION WITH LIMITED ACTION (ALTERNATIVE B)

Erosion Condition Class[a]	Existing AMPs		Revised AMPs		Proposed AMPs		Non-AMPs		Total[b]	
	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage
Stable	5,144	5,722	756	1,101	27,210	29,224	4,446	4,961	37,556	41,008
Slight	28,919	40,813	17,226	25,858	100,722	117,703	25,749	30,175	172,616	214,549
Moderate	124,715	112,940	89,765	81,314	189,948	172,066	49,414	44,655	453,842	410,975
Critical	34,864	34,243	26,284	25,761	55,625	54,587	9,076	8,916	125,849	123,507
Severe	3,791	3,715	142	139	3,746	3,671	1,120	1,098	8,799	8,623

SOURCE: BLM, 1979.

a. Unclassified acreage (12 percent), while it applies to the area totals, is not shown here.

b. Unallotted areas are not included in these figures.

TABLE 3-5

SHORT-TERM EROSION LOSSES FROM PROPOSED RANGE DEVELOPMENTS IN ALTERNATIVE C

Development[a]	Acres Disturbed	Soil Lost (tons per year)
Fencing	300.0	1,290
Pipelines	10.0	43
Cattleguards	0.5	2
Plowing and seeding	2,150.0	9,245
Prescribed burning	1,022.0	4,395
Sagebrush spraying	2,900.0	5,800
Total	6,382.5	20,775

SOURCE: BLM, 1979.

NOTE: The following assumptions have been made:

Soil lost from disturbed acres is 1.5 acre-feet per square mile per year, or 4.3 tons per acre per year. For areas sprayed for sagebrush control, a figure of 2 tons per acre was used. This figure was based on research by Dennis Phillippi, Range Conservationist, Soil Conservation Service, U.S. Department of Agriculture, Bozeman, Montana.

It takes four years to establish sufficient ground cover to stabilize the erosion.

[a] Spring developments, wells, and stock tanks are considered sources of long-term erosion; refer to the long-term impacts description.

TABLE 3-6

FUTURE EROSION CONDITION WITH IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT (ALTERNATIVE C)

Erosion Condition Class[a]	Existing AMPs		Revised AMPs		Proposed AMPs		Non-AMPs		Total[b]	
	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage
Stable	5,144	6,590	756	1,617	27,210	32,246	4,446	5,733	37,556	46,186
Slight	28,919	58,652	17,226	38,806	100,722	143,173	25,749	36,816	172,616	277,447
Moderate	124,715	95,279	89,765	68,638	189,948	145,242	49,414	37,514	453,842	346,673
Critical	34,864	33,311	26,284	24,977	55,625	53,031	9,076	8,678	125,849	119,997
Severe	3,791	3,601	142	135	3,746	3,559	1,120	1,064	8,799	8,359

SOURCE: BLM, 1979.

a. Unclassified acreage (12 percent), while it applies to the area totals, is not shown here.

b. Unallotted areas are not included in these figures.

Erosion problems that could be attributed to wildlife would have less impact with this alternative, provided wildlife populations did not increase significantly. More rest, fewer livestock, and different seasons of use (see Appendix 12) would allow for wildlife use of areas rested from livestock grazing.

On most areas where AUMs are now allocated but where erosion is critical or severe, the AUMs were deducted for this alternative (see Appendix 12). It is expected that this deduction would decrease the amount of use these tender areas receive, and that vegetation cover would therefore increase. Many of the areas are usable but not suitable for intensive grazing because of damage done to them or adjacent areas. Not allocating available forage on these eroding soils would help to maintain the essential vegetation cover needed to stabilize erosion, yet incidental grazing would be allowed to retain plant vigor.

The effects of water developments for this alternative would be the same as those shown for the proposed action. The sparse vegetation on eroding soils tends to green up faster because of warmer soil temperatures; consequently, grazing pressure would not subside significantly to decrease erosion if the only change was a reduction in livestock numbers. On areas where erosion condition is critical or severe, spring turnout would be delayed until most of the range has "greened up."

Short-term soil disturbance from range developments on 6,382.5 acres during the four-year implementation period would result in a total irretrievable loss of about 83,100 tons of soil. Erosion condition in the long term would be expected to improve greatly.

D. Accelerated Livestock Forage Development

The net short-term increase in erosion under this alternative would be approximately 1,096,348 tons (four years) from 83,082 acres disturbed by range developments (see table 3-7). Residual impacts would be the same as those described for the proposed action.

Long-term effects would be similar to those of the proposed action except that critical, severe, and slight erosion would decrease by 1 percent and moderate erosion would decrease by 8 percent. The net result would be a 1,259-acre decrease in critical and severe erosion and a 36,307-acre increase in stable and slight erosion (see table 3-8).

Erosion would increase on an average of about 15 percent of the existing, revised, and proposed AMPs and 27 percent of the unallotted areas and non-AMPs. Although more forage would be available for livestock within this alternative, there also would be more livestock; therefore, erosion problems where deer and elk winter ranges coincide with livestock use would be similar to problems encountered under the proposed action.

The impacts of water developments under this alternative would be the same as those of the proposed action. Impacts that could not be mitigated would be the same as those discussed for the proposed action.

Short-term soil disturbance on 83,082 acres due to range developments during the four-year implementation period would result in a total loss of about 1,096,348 tons of soil. This loss would be irretrievable. Erosion condition would improve slightly in the long term.

E. No Action

On the basis of watershed analysis of a projected decrease in vegetation cover in the long term, stable, slight, and critical erosion would deteriorate by 0.5 percent and moderate erosion would deteriorate into the next worse class by 5 percent. The net result would be a 22,692-acre increase in critical and severe erosion and an 864-acre decrease in the stable and slight ECC by the year 2010 (see table 3-9). Erosion would increase on an average of 35 percent of the existing, revised, and proposed AMPs and 30 percent of the unallotted areas and non-AMPs (see Appendix 19).

Erosion problems would be acute when deer and elk winter range coincided with livestock grazing because of the excess numbers of livestock and little rest for the watershed. However, the amount of erosion attributed to wildlife is unquantifiable; only the end result of all ungulate use can be seen. Long-term productivity would decrease and erosion condition would deteriorate.

F. Elimination of Livestock Grazing from Public Lands

Livestock grazing causes accelerated erosion and increased sedimentation in drainage bottoms and areas around water sources. The elimination of livestock grazing under this alternative would eliminate this acceleration of degradation on the public lands; however, because the tendency of livestock to walk along fences causes

TABLE 3-7

SHORT-TERM EROSION LOSSES FROM PROPOSED RANGE DEVELOPMENTS IN ALTERNATIVE D

Development[a]	Acres Disturbed	Soil Lost (tons per year)
Fencing	193.0	830
Pipelines	10.0	43
Cattleguards	0.5	2
Plowing and seeding	15,314.0	65,850
Prescribed burning	31,405.0	135,042
Sagebrush spraying	36,160.0	72,320
Total	83,082.5	274,087

SOURCE: BLM, 1979.

NOTE: The following assumptions have been made:

Soil lost from disturbed acres is 1.5 acre-feet per square mile per year, or 4.3 tons per acre per year. For areas sprayed for sagebrush control, a figure of 2 tons per acre was used. This figure was based on research by Dennis Phillippi, Range Conservationist, Soil Conservation Service, U.S. Department of Agriculture, Bozeman, Montana.

It takes four years to establish sufficient ground cover to stabilize the erosion.

a. Spring developments, wells, and stock tanks are considered sources of long-term erosion; refer to the long-term impacts description.

TABLE 3-8

FUTURE EROSION CONDITION WITH ACCELERATED LIVESTOCK FORAGE PRODUCTION (ALTERNATIVE D)

Erosion Condition Class[a]	Existing AMPs		Revised AMPs		Proposed AMPs		Non-AMPs		Total[b]	
	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage
Stable	5,144	5,433	756	928	27,210	28,217	4,446	4,703	37,556	39,281
Slight	28,919	38,607	17,226	24,235	100,722	114,911	25,749	29,445	172,616	207,198
Moderate	124,715	115,087	89,765	82,847	189,948	175,308	49,414	45,552	453,842	418,794
Critical	34,864	34,553	26,284	26,022	55,625	55,106	9,076	8,996	125,849	124,677
Severe	3,791	3,753	142	141	3,746	3,709	1,120	1,109	8,799	8,712

SOURCE: BLM, 1979.

a. Unclassified acreage (12 percent), while it applies to the area totals, is not shown here.

b. Unallotted areas are not included in these figures.

TABLE 3-9

FUTURE EROSION CONDITION WITH NO ACTION (ALTERNATIVE E)

Erosion Condition Class[a]	Existing AMPs		Revised AMPs		Proposed AMPs		Non-AMPs		Total[b]	
	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage
Stable	5,144	5,118	756	752	27,210	27,074	4,446	4,424	37,556	37,368
Slight	28,919	28,800	17,226	17,144	100,722	100,354	25,749	25,642	172,616	171,940
Moderate	124,715	118,624	89,765	85,363	189,948	180,955	49,414	47,072	453,842	432,014
Critical	34,864	40,926	26,284	30,641	55,625	64,844	9,076	11,502	125,849	147,913
Severe	3,791	3,965	142	273	3,746	4,024	1,120	1,165	8,799	9,427

SOURCE: BLM, 1979.

a. Unclassified acreage (12 percent), while it applies to the area totals, is not shown here.

b. Unallotted areas are not included in these figures.

the formation of fence line trails, accelerated erosion and sedimentation could be expected on the privately owned land on the private side of the fences. The net short-term increase in erosion would be approximately 46,440 tons (four years) from the disturbance of 2,700 acres by fencing.

Without livestock grazing, plants would initially respond with increased vigor, with resulting increased ground cover and litter formation; thus, bare ground and erosion potential would be reduced. However, grass species could stagnate eventually at less than full growth potential without the growth stimulation offered by livestock grazing, but wildlife numbers would be expected to increase as a result of this alternative. The periodic trampling, browsing, and grazing offered by increased wildlife could help maintain vegetative vigor.

Infiltration rate, permeability, and organic matter would improve under this alternative, with critical, severe, and slight erosion decreasing by 10 percent and moderate erosion decreasing by 40 percent. The net result would be a 12,585-acre decrease in critical and severe ECC and a 181,537-acre increase in the stable and slight ECC (see table 3-10).

Short-term soil disturbance by fencing on 2,700 acres would result in an insignificant but irretrievable total loss of 46,440 tons of soil in four years. Erosion condition would improve in the long term.

An additional impact caused by fencing public lands would be the cutting of trails on private land along the fence lines. Erosion problems created immediately across the fence could then extend onto public lands.

Conclusions

Watershed and erosion condition would improve in general under every alternative; however, the degree of difference between alternatives and the existing situation would vary (see figure 3-1). Under most alternatives, erosion would increase within the 25-year time frame on a certain percentage of AMPs and non-AMPs (see each alternative) because of soil characteristics and range management practices.

The implementation of Alternative A would improve 75 percent of the existing, revised, and proposed AMPs, and there would be a 3,776-acre decrease in critical and severe erosion and a 63,538-acre increase in the stable and slight erosion condition class (ECC) over the existing situation. The total soil loss from range developments would be 148,860 tons.

Alternative B would improve 38 percent of the existing, revised, and proposed AMPs, and there would be a 2,515-acre decrease in the critical and severe ECC and a 45,385-acre increase in the stable and slight ECC over the existing situation. The total soil loss from range developments would be 25,939 tons.

The implementation of Alternative C would improve 94 percent of the existing, revised, and proposed AMPs. Similarly, 6,292 acres in the critical and severe ECC would improve to the next better class, and 113,461 more acres would be added to the stable and slight erosion condition classes. The total soil loss from range developments would be 83,100 tons.

Alternative D would improve 60 percent of the existing, revised, and proposed AMPs, and there would be a 1,259-acre decrease in the critical and severe ECC and an increase of 36,307 acres in the stable and slight ECC. The total soil loss from range developments would be 1,096,348 tons.

Alternative E would improve 12 percent of the existing, revised, and proposed AMPs. However, under this alternative there would be a 22,692-acre increase in the critical and severe ECC and an 864-acre decrease in the stable and slight ECC by the year 2010. No additional range developments would be planned under this alternative.

Alternative F would improve 100 percent of the existing, revised, and proposed AMPs. There would be a 12,585-acre decrease in the critical and severe ECC and an increase of 181,537 acres in the stable and slight ECC. The total soil loss from range developments would be 46,440 tons.

Compaction

Livestock can cause soil compaction directly and indirectly. Trampling by livestock is a direct cause of compaction. Livestock exert pressures equivalent at least to those of heavy tractors (USDA, FS 1959). However, the effects of compaction do not require heavy and repetitious travel. Under moist soil conditions normally encountered during spring runoff, even light trampling can effectively compact the soil.

Compaction caused indirectly by livestock occurs when exposed soils on overgrazed ranges with little vegetation cover are subject to rainfall

TABLE 3-10

FUTURE EROSION CONDITION WITH THE ELIMINATION OF LIVESTOCK GRAZING FROM PUBLIC LANDS (ALTERNATIVE F)

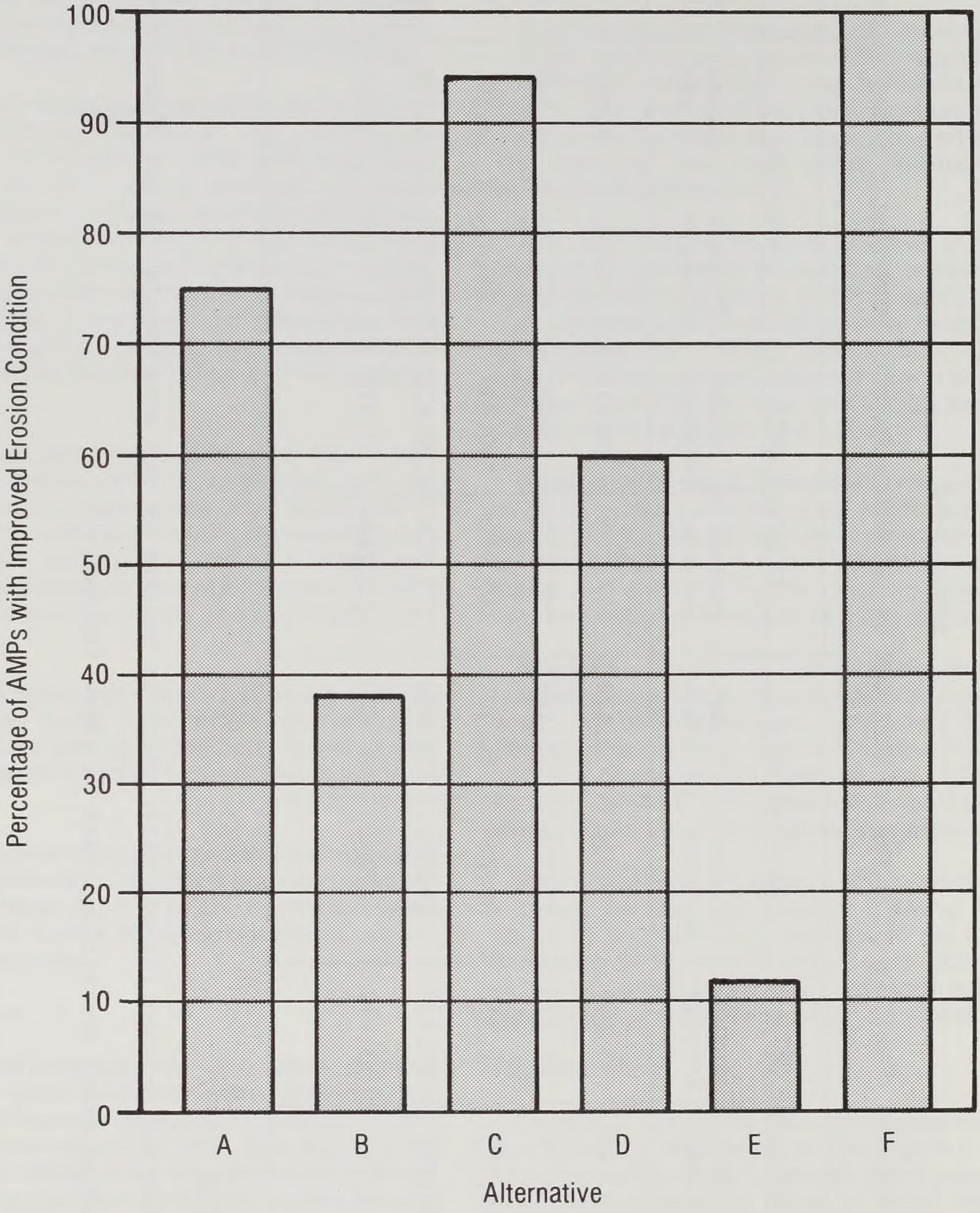
Erosion Condition Class[a]	Existing AMPs		Revised AMPs		Proposed AMPs		Non-AMPs		Total[b]	
	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage	Present Acreage	Future Acreage
Stable	5,144	8,036	756	2,479	27,210	28,217	4,446	7,021	37,556	45,753
Slight	28,919	75,913	17,226	51,409	100,722	175,694	25,749	42,940	172,616	345,956
Moderate	124,715	78,315	89,765	56,487	189,948	119,532	49,414	30,556	453,842	284,890
Critical	34,864	31,757	26,284	23,670	55,625	50,437	9,076	8,280	125,849	114,144
Severe	3,791	3,412	142	128	3,746	3,371	1,120	1,008	8,799	7,919

SOURCE: BLM, 1979.

a. Unclassified acreage (12 percent), while it applies to the area totals, is not shown here.

b. Unallotted areas are not included in these figures.

Figure 3-1: IMPROVEMENT OF EROSION CONDITIONS



SOURCE: BLM, 1979

impact of considerable magnitude. As Lull indicates, a moderate rain of 0.15 inches per hour can exert 4.2 foot-pounds per square foot, whereas an excessive rain (common to the study area) of 1.60 inches per hour can exert 74.5 foot-pounds per square foot (USDA, FS 1959). The beating action exerted by rainfall impact seals the soil surface, causing reduced infiltration rates and reduced vegetation production, so that erosion is encouraged.

Frost action can improve a compacted soil by freezing and thawing over a period of time. However, not all compaction problems can be alleviated by frost action, because soil and moisture conditions vary. As Lull states, "Soil frost, under different conditions, can either facilitate or hinder compaction" (USDA, FS 1959). These impacts can occur when frost action loosens the compacted soil or breaks down water-stable aggregates, causing puddling of the soil surface.

More than half (57 percent) of the existing, revised, and proposed AMPs and 87 percent of the unallotted areas and non-AMPs do not have soils particularly susceptible to compaction. However, where compaction has been identified (see Appendix 15) or the soils are subject to compaction, there is a clear and present danger of extensive damage in terms of increased surface runoff and erosion.

A. The Proposed Action

Under the proposal there would be less spring livestock grazing, and vegetation cover would improve with more rest. Estimates based on those facts indicate that 22 percent of the existing, revised, and proposed AMPs would have less compaction, and 2 percent of the unallotted areas and non-AMPs would improve. However, 9 percent of the existing, revised, and proposed AMPs and 6 percent of the unallotted areas and non-AMPs away from water would deteriorate because of compaction problems that would not be addressed by this alternative (see Appendix 19).

Compaction would be prevalent around spring developments, wells, and stock tanks. Compaction and exposed soils, with resulting erosion, would permit little vegetation to grow in the vicinity of these developments. The compaction would be insignificant, however, unless the water developments were constructed in drainage bottoms or on slopes that are too steep. In these cases the favorable impact of better livestock distribution could be nullified. Drainage bottoms are natural waterways; compacted soils caused by intensive use of these areas would increase accelerated erosion and sediment. Similarly, compacted soils on side slopes would invite extensive accelerated erosion and loss of productivity.

Deterioration due to compaction would occur in 9 percent of the existing, revised, and proposed AMPs and in 6 percent of the unallotted areas and non-AMPs. Surface runoff would increase, causing increased erosion and sediment production from these allotments. Erosion due to compaction is not quantifiable at this time.

B. Limited Action

Impacts would be similar to those of the proposed action, except that only 10 percent of the existing, revised, and proposed AMPs would have less compaction, while 17 percent would deteriorate. Concurrently, 2 percent of the unallotted areas and non-AMPs would improve, while 6 percent would deteriorate (see Appendix 19).

The impacts of water developments on revised AMPs would be the same as those in the proposed action.

Loss of soil and productivity due to compaction would occur on 6 percent of the unallotted areas and non-AMPs and on 2 percent of the existing, revised, and proposed AMPs. These erosion losses cannot be quantified at this time.

C. Improved Watershed Values and Wildlife Habitat

This alternative would improve 39 percent of the existing, revised, and proposed AMPs and 5 percent of the unallotted areas and non-AMPs. None of the existing, revised, and proposed AMPs would deteriorate, but 5 percent of the unallotted areas and non-AMPs would worsen because of the limited action that could be taken on non-AMPs. These soil and productivity losses due to compaction would be insignificant.

The impacts of water developments would be the same as those of the proposed action.

D. Accelerated Livestock Forage Development

Impacts would be similar to the proposed action, except that 17 percent of existing, revised, and proposed AMPs and 2 percent of the unallotted areas and non-AMPs would have less compaction (see Appendix 19).

Impacts from water developments would be similar to those of the proposed action.

Soil and productivity loss due to compaction would occur on 15 percent of the existing, revised, and proposed AMPs and on 6 percent of the non-AMPs. Erosion losses due to compaction cannot be quantified at this time.

E. No Action

Impacts would be similar to those of the proposed action, except that 2 percent of the existing, revised, and proposed AMPs would have less compaction. There would be no reduction of compaction on any of the non-AMPs (see Appendix 19).

Impacts from existing water developments would be similar to those of the proposed action.

A residual impact would be the loss of soil and productivity due to compaction on 26 percent of the existing, revised, and proposed AMPs and on 8 percent of the non-AMPs. Erosion and productivity losses cannot be quantified at this time.

F. Elimination of Livestock Grazing from Public Lands

Without the trampling effects of intensive livestock use, 43 percent of the existing, revised, and proposed AMPs and 13 percent of the non-AMPs would have less compaction. These percentages represent all of those allotments that have a compaction problem or susceptible soils.

Conclusions

The compaction problem is not widespread in the study area; however, compaction and/or soils susceptible to compaction have been identified on all or parts of 79 (43 percent) of the existing, revised, and proposed AMPs (see figure 3-2). Although quantifiable data are not available, on the basis of professional judgment it is believed that 22 percent of the existing, revised, and proposed AMPs would improve with the implementation of the proposed action.

Alternative B, if implemented, would decrease compaction on 10 percent of the existing, revised, and proposed AMPs. Compaction would decrease on 39 percent of the existing, revised, and proposed AMPs with the implementation of Alternative C, and 17 percent of the existing, revised, and proposed AMPs would have less compaction if Alternative D were implemented. Compaction would improve on 2 percent of the existing, revised, and proposed AMPs under Alternative F. With the removal of trampling associated with intensive livestock use under Alternative F, compaction problems would be reduced on 43 percent of the existing, revised, and proposed AMPs.

WATER RESOURCES

Water Use

The impacts of any alternative on water use within the study area would be minimal. Redistribution of water would occur because of range developments, but overall consumption of water would decrease slightly or stay the same.

Table 3-11 shows the magnitude of livestock consumption in comparison with other water uses. The table also compares the current water used by livestock on BLM land with that of the preferred action. As shown in table 3-11, any land use decisions concerning grazing would have a minimal impact on water use in the study area.

Surface Water Supply

Streamflow

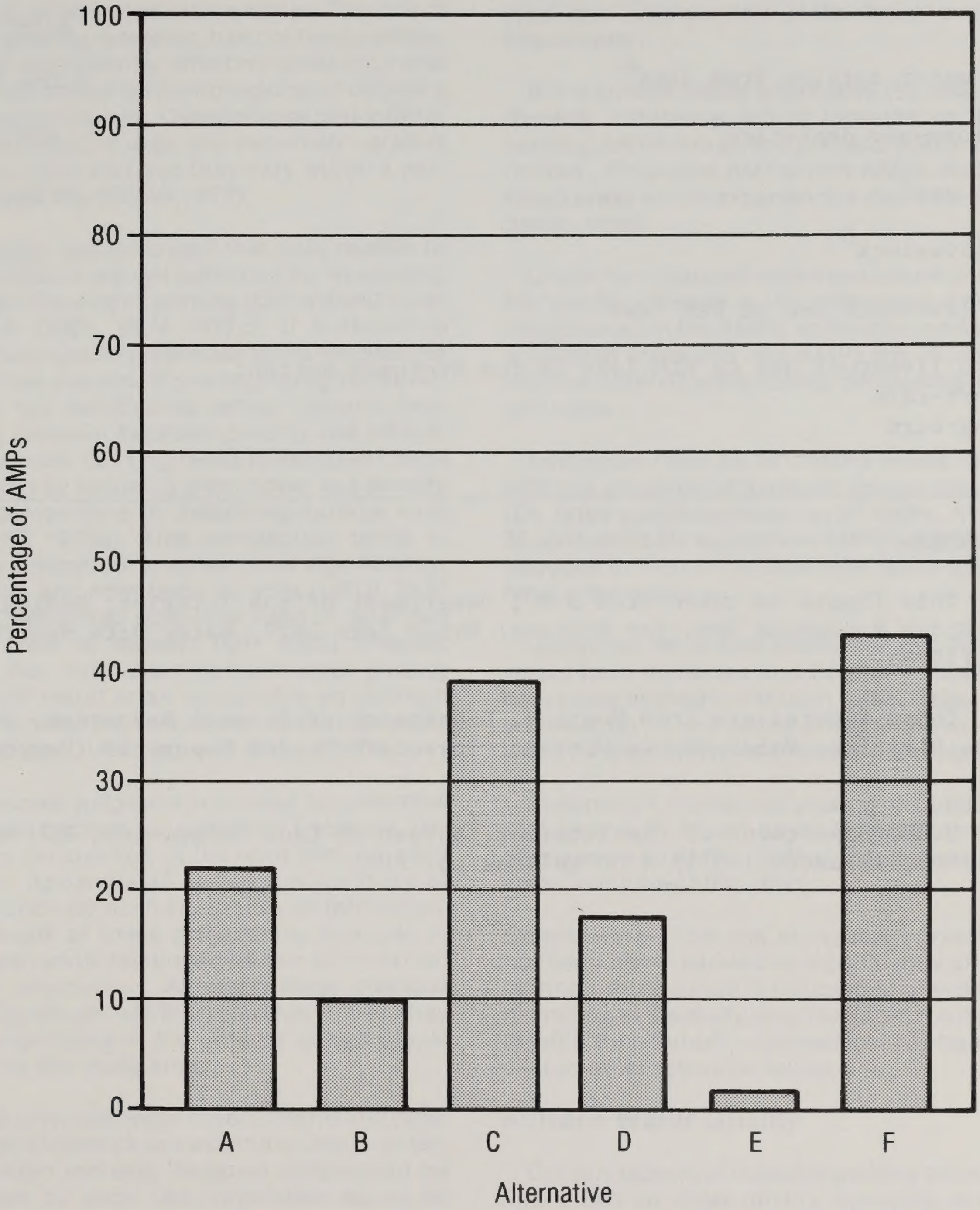
With the exception of Alternative C, Improved Watershed Values and Wildlife Habitat, and Alternative F, Elimination of Livestock Grazing, the alternatives would have insignificant impacts on annual streamflow and peak flows. The changes in streamflow would not be measurable with the use of standard equipment and methods.

The implementation of either Alternative C or Alternative F would increase vegetation cover and riparian zone vegetation. The increased vegetation would retain water, allowing it time to infiltrate or evaporate. The additional water would be available to plants, thus increasing the size and number of plants. This extra water would especially benefit plants in the lower elevations (below 6,300 feet), where water is the limiting factor.

The increased vegetation density would decrease the peak flows, promoting more uniform streamflows. Wide variations in streamflow would be reduced. Quantification of changes is not possible.

Conclusions—The proposed action, Alternative B (Limited Action), Alternative D (Accelerated Livestock Forage Development), and Alternative E, (No Action) would have no measurable effect on streamflow. Alternatives C and F would, in the long run, result in more uniform streamflow and reduced peak flows.

Figure 3-2: COMPACTION IMPACTS[a]



SOURCE: BLM, 1979.

[a] Percentage of the existing, revised, and proposed AMPs that would improve with implementation of each alternative.

TABLE 3-11

CONSUMPTIVE WATER USE IN THE EIS STUDY AREA, 1975

	Acre-feet
Surface water outflow from area[a]	4,094,000.0
Irrigation--net depletion[b]	834,765.0
Domestic use[b]	21,807.0
Use by livestock[b]	3,479.0
Current livestock use on BLM land[c]	128.0
Projected livestock use on BLM land in the proposed action:[c]	
Short-term	104.0
Long-term	128.5

SOURCES:

a. This figure is taken from U.S., Department of the Interior, Geological Survey, *Water Resources Data for Montana: Water Year 1977*, Water Data Report MT-77-1 (1978).

b. These figures are from Montana, Department of Natural Resources, Water Resources Division, *Water Use in Montana*, Inventory Series Report 13 (Helena, MT: 1975).

c. U.S., Department of the Interior, Bureau of Land Management, *BLM Manual*, section 1605, illustration 12 (300 gallons per AUM).

Infiltration and Runoff

Research has established that grazing does affect infiltration/runoff relationships. The role of livestock grazing, however, has not been demonstrated as significantly affecting infiltration and runoff in the context of hydrologic balance over a large geographic area. Data indicate that infiltration/runoff relationships are extremely variable over large areas and that they vary within a particular range site (Green 1979).

It has been demonstrated that data relative to range condition are not sufficient for evaluating hydrologic impacts of grazing (Gifford and Hawkins 1978; USDI, BLM 1977c). It is therefore impossible to quantify in precise terms the changes in infiltration and runoff due to grazing. However, research has established certain general relationships between livestock grazing and infiltration and runoff. Grazing tends to increase runoff and erosion by reducing plant cover and density and by compacting or detaching surface soils (USDA, FS 1975a). This compaction tends to decrease infiltration, in some cases significantly, on medium and light textured soils (USDI, BLM 1977c). Compacted soils may need at least two years of rest to recover (Orr 1975). Present research has not determined just what grazing system will result in an acceptable equilibrium between vegetation, animal, and hydrologic components (Fogel, Hekman, and Gilbert 1978).

Professional judgment was used to determine what would happen to infiltration (increase, decrease, or no change) in the long term on each allotment. Appendix 15 shows the summary of the projection for each alternative on infiltration. On the basis of these projections, changes in infiltration/runoff relationships are summarized for each alternative. Although these changes may be significant to other resource values, they are not significant in the context of hydrologic balance for the study area.

Around proposed water developments and other areas where livestock use would be concentrated, runoff would increase because soils would be compacted by such use, vegetation would be trampled, and vegetation consumption would increase. This impact would be very localized.

Overall impacts of the proposed action (A) would be that runoff from the existing, revised, and proposed AMPs would decrease because of increased infiltration rates. Under the proposed action, the non-AMP and unallotted areas would experience a downward trend; that is, long-term infiltration rates would decrease, with a corresponding increase in runoff. Increased runoff would increase erosion and resultant sediment yield (see "Compaction" in the "Soils" section of this chapter).

If the limited action alternative (B) was implemented, infiltration would increase on the 48 existing AMPs and on any of the 22 AMPs that are revised. Proposed AMPs, non-AMPs, and unallotted areas would experience a decrease in infiltration rates.

Under the improved watershed values and wildlife habitat alternative (C), infiltration would increase on all of the AMPs. Infiltration on 49 of the unallotted areas and non-AMPs would increase, with the other 63 areas having decreasing infiltration rates.

Infiltration rates on 101 AMPs would increase with the accelerated livestock forage alternative (D); rates would decrease on 37 AMPs. A total of 35 unallotted areas and non-AMPs would have an increase in their infiltration rate, while 69 would have a decrease.

Under the no action alternative (E), 20 AMPs would have increases and 74 AMPs would have decreases in their infiltration rates. Rates would increase on 18 unallotted areas and non-AMPs, while 78 would have decreased infiltration rates.

Elimination of livestock grazing on public lands (Alternative F) would cause infiltration rates to increase on all AMPs (186) and on the unallotted areas and non-AMPs (332).

Conclusions—The role of livestock grazing has not been demonstrated as significantly affecting infiltration and runoff in the context of hydrologic balance over the study area. However, the changes in infiltration/runoff relationships may be significant to other resource values.

Surface Water Quality

Certain aspects of livestock grazing have a minimal effect on water quality. Spraying, burning, and plowing and seeding would have minimal impacts on water quality. Short-term sediment yield would increase following these practices, but long-term sediment yield would decrease because of increases in vegetation and ground cover.

Water temperatures would increase slightly in areas where existing riparian vegetation was

TABLE 3-12

SEDIMENT YIELD

	Sediment Yield in Tons per Year/(Percentage of Change from Existing)											
	Existing		Revised		Proposed		Non-AMPs		Unallotted Areas		Total	
Existing Situation	589,900		452,500		1,116,000		206,000		34,700		2,449,000	
Alternative												
A: The Proposed Action	533,300	(- 10%)	382,400	(- 16%)	949,700	(- 15%)	213,600	(+ 4%)	36,800	(+ 6%)	2,115,700	(- 14%)
B. Limited Action	474,200	(- 20%)	386,700	(- 14%)	1,118,400	(0%)	213,600	(+ 4%)	36,800	(+ 6%)	2,229,700	(- 9%)
C: Improved Watershed Values and Wildlife Habitat	342,600	(- 42%)	236,400	(-48%)	748,600	(- 33%)	193,700	(- 6%)	27,000	(- 22%)	1,548,300	(-37%)
D: Accelerated Livestock Forage Production	532,400	(- 10%)	394,700	(- 13%)	1,059,600	(- 5%)	216,900	(+ 5%)	36,800	(+ 6%)	2,243,300	(- 8%)
E: No Action	622,300	(+ 6%)	477,400	(+ 6%)	1,230,100	(+ 10%)	217,300	(+ 5%)	36,600	(+ 6%)	2,583,700	(+ 6%)
F: Elimination of Livestock Grazing from Public Lands	180,800	(- 69%)	119,800	(- 74%)	412,400	(- 63%)	81,700	(- 60%)	8,900	(- 74%)	803,500	(- 67%)
Acreage	214,000		139,000		438,000		120,000		43,000		954,000	

SOURCE: BLM, 1979.

reduced by grazing. Any increase in streamside vegetation would result in a decrease in water temperature.

Existing data show that bacteria counts when cattle are present exceed state standards for fecal coliform up to 69 percent of the time (Foggin, Reid, and Gilbert 1978). Implementation of any of the grazing alternatives would not change bacterial concentrations, as cattle congregate in the stream bottoms, regardless of numbers present. The implementation of the no grazing alternative would result in significantly lowered bacterial concentrations, because bacterial counts would drop to previous levels following removal of cattle (USDA, FS 1978a).

The water quality parameter that would be affected most by any alternative would be sediment. Table 3-12 shows the estimated sediment yield in tons per year for each alternative and the percentage of change from the existing situation. These estimates were arrived at by using the Pacific Southwest Inter-Agency Committee (PSIAC) method.

As stated in the "Water Resources" section of chapter 2, the state of Montana has classified most of the waters in the study area as B-D1, with some exceptions being A-Open-D1, which is a higher classification. In waters under these classifications, "no increases above naturally occurring concentrations of sediment... which adversely affect the uses indicated, are allowed." Waters under these classifications are to be maintained suitable for bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl, and furbearers; and agricultural and industrial water supply.

Any increases in sediment in the study area would adversely affect the growth propagation of salmonids and associated aquatic life.

Suspended sediment may impair agricultural, industrial, and municipal uses, and it decreases the aesthetic and recreational values of water. It reduces the useful life of reservoirs; reduces dissolved oxygen in water bodies, inhibiting aquatic life; and reduces crop yields and agricultural efficiency.

Although sediment yield affects water uses and aquatic productivity within the study area, it was not possible to draw an exact numerical correlation between the two. Any reduction in sediment yield is directly beneficial to water users and the aquatic environment. Further increases in sediment concentrations would further reduce channel stability by increasing a stream's power and its erosional depositional processes. Stream width would increase as the banks retreated, creating shallower streams, thus increasing water temperatures (Kennedy 1977).

Two sources of sediment exist, channel erosion and upland erosion. Upland erosion is easier to control, as grazing pressures are easier to regulate on the uplands than in the stream corridors. Upland erosion most often correlates to ground cover.

Channel erosion is the major contributor of sediment. Channel erosion is hard to control because, regardless of the number of cattle that remain in an allotment, they will still congregate in stream bottoms. As Ames pointed out at a symposium on riparian habitat, "because the areas are usually extremely narrow and linear, grazing for only a few days can seriously impair its reproductive capacity. It's like having the milk cow get in the garden for one night" (1977). This damage can occur even with limited numbers of livestock. About the only way to reduce accelerated channel erosion by grazing is to fence the areas and keep livestock out (Ames 1977) (see "Riparian Habitat" in the "Terrestrial Wildlife" section of this chapter). While trampling may help plant seeds, it also causes stream bank erosion and instability (Meehan and Platts 1978).

The PSIAC estimates are based on the professional judgment of the Dillon Resource Area soil scientist concerning changes in parameters due to the alternative actions. The parameters include runoff, ground cover, land use, upland erosion, channel erosion, and sediment transport.

Since most of the sediment is produced from stream banks and channels, the estimated sediment yields should follow the same pattern as riparian habitat condition. That is, if riparian habitat condition improved, less sediment would be produced.

The overall sediment yields in table 3-12 do correlate with the "Riparian Habitat" section and table 3-30, which shows estimates of stream corridor improvement or degradation. When estimates of riparian habitat conditon were done, two criteria were used, woody species and bank condition (see the riparian habitat discussion in the "Terrestrial Wildlife" section of this chapter).

Impacts

Under the proposed action, 2,115,700 tons of sediment would be produced per year over the long run. This is 14 percent less than the existing situation. The uplands would increase in ground cover and eventually stabilize, if the potential is there. Channel erosion and stream bank degradation would improve moderately.

If the limited action alternative (B) were implemented, sediment yield would be 2,229,700 tons per year, or 9 percent less than the existing situation. The largest improvement would be on the existing and revised AMPs, which would decrease their sediment yield by 20 percent and 14 percent from the existing situation, respectively.

Overall, sediment would be reduced by 37 percent under Alternative C, Improved Watershed Values and Wildlife Habitat. The revised and existing AMPs would show the greatest improvement from the existing situation, 48 percent and 42 percent less sediment, respectively.

Stream bank stability and soil compaction would improve over the long term. Streams would become narrower and deeper as plants stabilized sediment deposits and streamside vegetation became reestablished (Kennedy 1974). Upland ground cover would increase to the ideal situation (65 to 70 percent) because of less use.

Alternative D, Accelerated Livestock Forage Development, would not decrease sediment production very much. An overall reduction of 8 percent would occur under this alternative, but sediment production would increase in the non-AMP and unallotted areas by 5 and 6 percent, respectively. Short-term sediment yields would be slightly more than the existing situation because of the installation of range developments and the impacts of vegetation manipulation.

The no action alternative (E) would degrade the environment by increasing sediment production by 6 percent overall, with increases ranging from 5 to 10 percent; the largest increase in sediment would come from the proposed AMPs, as shown in table 3-12.

Alternative F, Elimination of Livestock Grazing, would decrease sediment yield by 67 percent, or two-thirds less than the existing situation. The remaining sediment yield would come from natural erosion. Riparian zones would be reestablished and stream banks would stabilize as ground cover increased and peak flows decreased. Long-term productivity would increase as ground cover and infiltration increased. Stream flow decreases would enable stream banks to stabilize and riparian zones to be reestablished.

Conclusions

Any sediment yield from a particular watershed would be irretrievably lost.

Sediment yield under the limited action (B), no action (E), and accelerated livestock forage alternatives (D) would not change significantly from the existing situation. Figure 3-3 shows the sediment yield for each alternative.

The greatest short-term sediment yield would be under the accelerated livestock forage alternative (D) because of the range developments to be done. The greatest overall sediment yield would occur under the no action alternative (E).

The proposed action would decrease sediment production moderately because there would be some improvement in channel stability and reduction in upland erosion.

The greatest improvement in sediment reduction would be under Alternative C, Improved Watershed Values and Wildlife Habitat, and Alternative F, Elimination of Livestock Grazing. Alternative C would reduce existing sediment yield by 40 percent, and Alternative F would decrease sediment yield by two-thirds of the existing situation, producing the lowest sediment yield of any alternative.

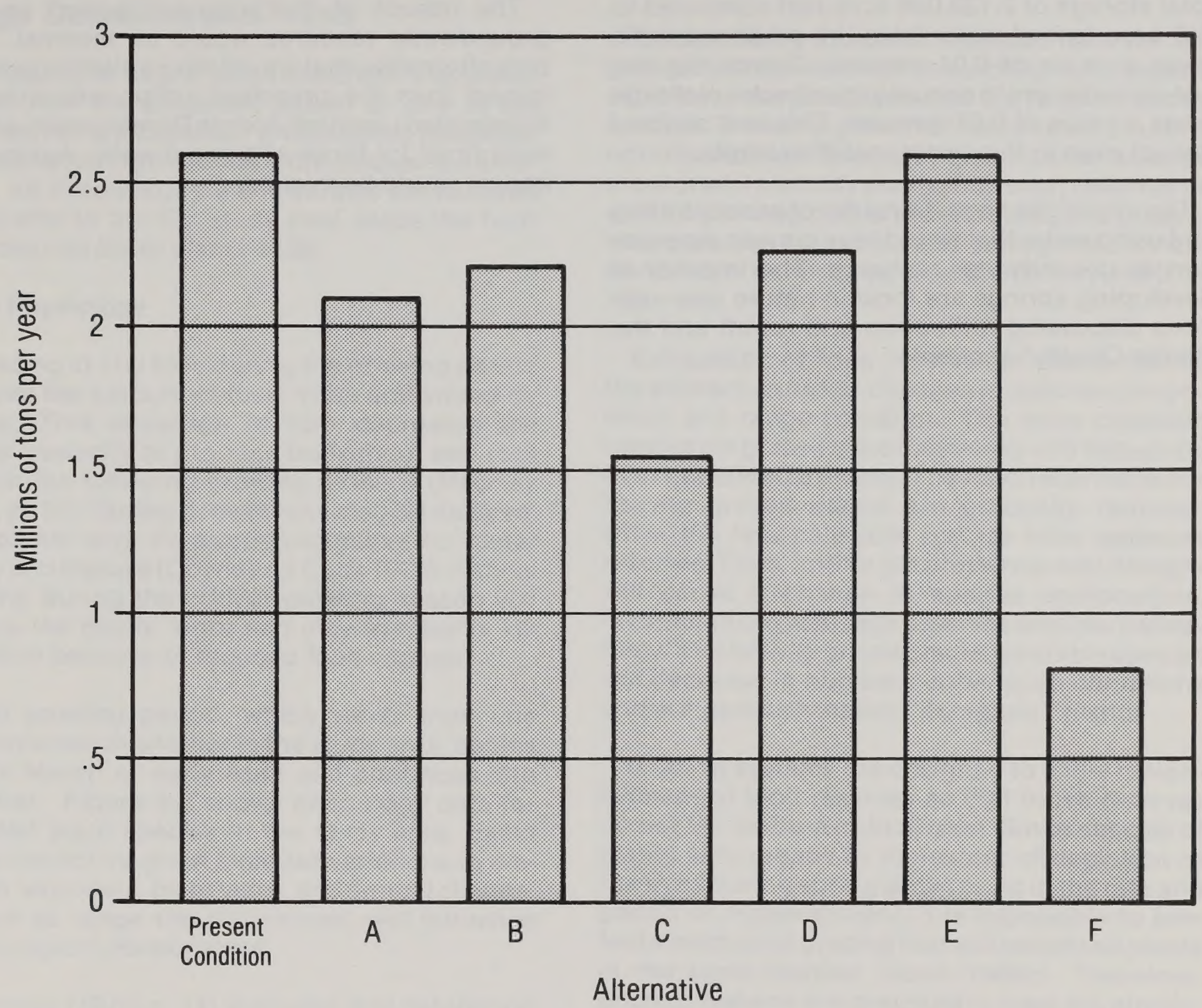
Groundwater

Impacts

Under the proposed action, 40 wells and 61 springs would be drilled or developed. The average yield for each well would be in the range of 5 to 10 gallons per minute (gpm). If 7.5 gpm is used as an average, with an average six-month season of use, the 40 wells would yield 78,400,000 gallons for each season of use, or 240 acre-feet per year. In most cases, the wells would not be pumping when the pastures were not being used unless a need for additional water beyond the grazing season (for wildlife, for example) had been identified.

The comparison to known storage and recharge figures for the area's consolidated aquifers gives an idea of the magnitude of the impacts on the groundwater resource. Table 2-3, in chapter 2,

Figure 3-3: LONG-TERM SEDIMENT YIELD[a]



SOURCE: BLM, 1979.

[a] This graph shows the annual sediment yield that would occur after 25 years for each alternative.

shows the major aquifers in the area, their storage capacities, and the annual recharge figures. The total storage of 2,139,000 acre-feet compared to 240 acre-feet of water from the proposed wells gives a value of 0.01 percent. Comparing the annual water use to annual groundwater recharge gives a value of 0.07 percent. This is a minimal impact even in this "worst case" example.

Developing springs is a matter of concentrating and using water that would have gone to evaporation or groundwater recharge. The impacts of developing springs are local in nature (see sections discussing infiltration and runoff and the "Water Quality" section).

Conclusions

The impact of the proposed action on the groundwater resource would be minimal. The only alternative that would have a slightly greater impact than the proposed action would be D, Accelerated Livestock Forage Development, which would call for three additional wells. Again, the impact would be minimal.

VEGETATION

Range Condition and Trend

Estimates of future range condition that would result from the proposed action or one of the alternatives are based on professional judgment and the following cited literature studies and analyses. All cited literature and studies are believed applicable to the EIS study area, since the findings discuss basic plant needs.

Plant Physiology

Grazing at any time during the growing period reduces the amount of food made and stored by plants. This reduction in turn decreases the plants' capacity to produce both shoot and root growth the following growing seasons (Hormay 1970, p. 14). Spring growth may also be delayed, and plants may be more susceptible to winter injury and disease (Coyne and Cook 1970). Annual grazing during the critical growing season will reduce the plants' vigor and may eventually kill the plant because of reduced food storage.

The growing period, which varies from one plant species to another in the study area, begins in late March or early April and continues into October. Figure 3-4 shows phenology data for selected plant species in the study area. Exact dates cannot be given because variations in elevation. exposure, plant vigor, and annual climate, as well as range site differences, will influence phenological development.

Hormay (1970, p. 14) indicates that defoliation is most harmful when reserves are lowest. This occurs in spring or early summer when the plant is growing most rapidly. Cool season plants make most or all of their growth during early spring, while warm season plants make most or all of their growth during late spring and early summer. Most grass plants in the study area are cool season plants. Blue grama is the only warm season grass plant of significance in the study area. Cook (1966b, p. 4) indicates that from 10 percent to as much as 45 percent of the annual growth may be produced before food reserves cease to decline. Storage of food reserves generally is most active when plants are completing their annual cycle. Donart (1969) indicates that maximum food reserves for six mountain range plants in Utah were reached at or near flowering. Plant respiration during the winter and the production of spring growth together may consume from 47 percent to as much as 75 percent of the food reserves accumulated the previous year (Cook 1966b, p. 4).

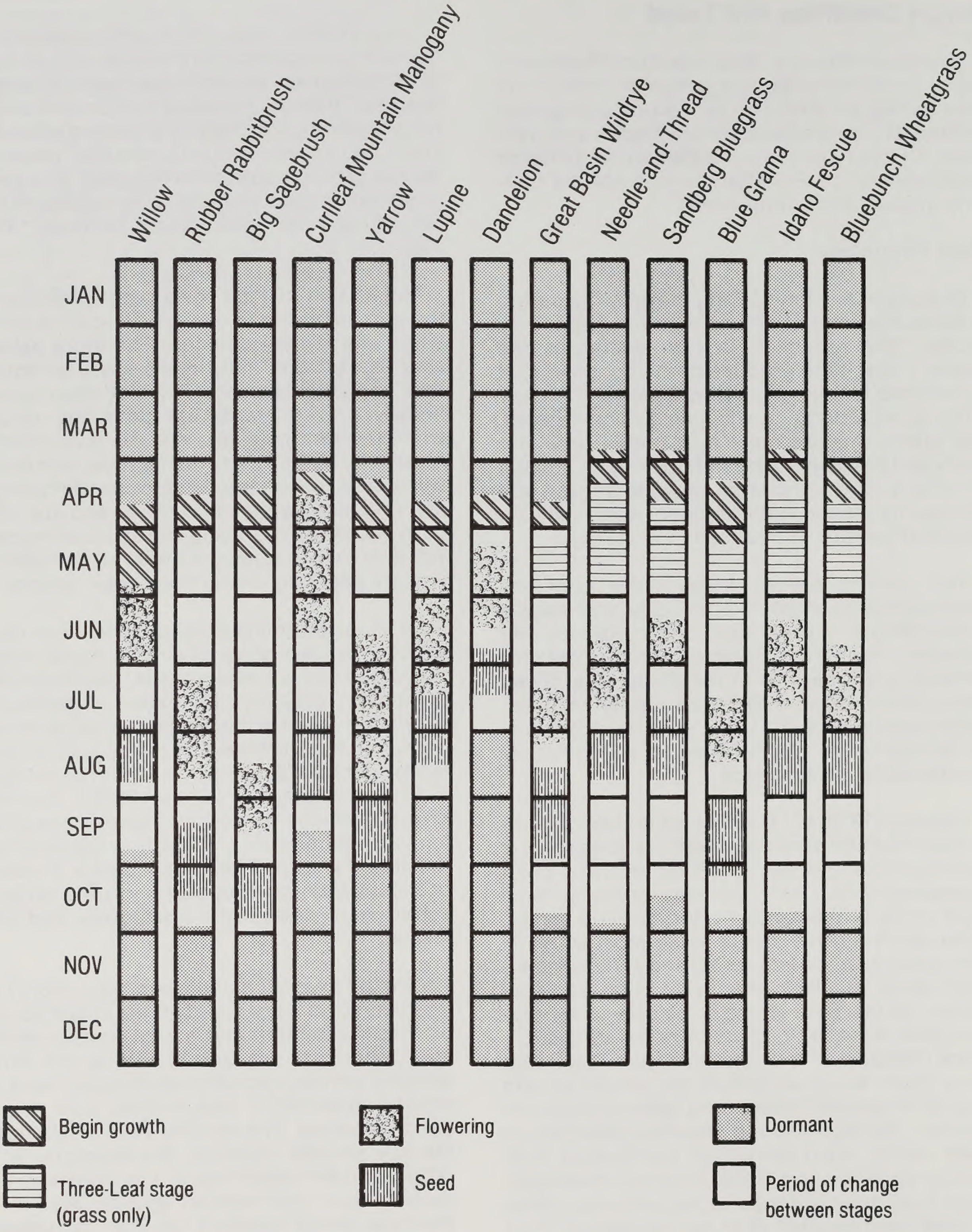
Cook (1966b) indicates that food reserves are generally associated with the underground organs of herbaceous plants and also the twigs of woody species. Thus, the growth of herbaceous plants is not affected significantly by grazing after reserves are stored. In woody plants, however, reserves as well as growing points are exposed, and grazing after reserves are stored and during the dormant period can harm these plants (Hormay 1970, p. 15).

Exhaustion of food reserves in plants can be the primary cause of changes in species composition and range condition. The more palatable species are grazed more intensively and frequently than unpalatable plants. The food reserves in the heavily grazed plants are gradually reduced, while the less palatable species have optimum reserves. Thus, further grazing stress and drought will cause a change in species composition, favoring those with high reserves and low palatability. The heavily grazed, more palatable species will decrease in numbers under such conditions and are generally called "decreaser" plants.

Grazing systems are designed to allow replenishment of food reserves so that those reserves do not fall below a critical level. Since species of plants vary greatly in the extent of depletion of reserves during spring growth and in the rate and period of replenishment, it is impossible to perfect a method of grazing that will benefit all plants in the same manner (Cook 1966b). Therefore, grazing systems are designed to meet the physiological requirements of specific or key species for the area involved. The key species in the design of most of the grazing system in the proposed action were bluebunch wheatgrass and Idaho fescue.

With the exception of the short-duration, high-intensity system proposed for the Lower Rochester Basin allotment and the seasonal non-AMP allotments that are grazed during the critical growing period, each allotment would have systematic deferred or rest periods built into the grazing system. The amount of rest depends on the key species involved, the character of the range, and the objectives of management. Each pasture in a rest-rotation grazing system, for example, would receive a full year rest period at least once every three to four years. This schedule has been found adequate on the basis of past experience with existing AMPs in this area and similar geographic areas. Short-term vegetation

Figure 3-4: PHENOLOGICAL DEVELOPMENT FOR SELECTED PLANT SPECIES IN THE STUDY AREA



SOURCE: BLM, Dillon Resource Area files.

NOTE: Dates are approximate because phenological development is influenced by variations in elevation, exposure, plant vigor, and annual climate.

impacts from spring and summer rest would be increased vigor, reproduction, seedling establishment, and litter accumulation (Hormay 1970, p. 8).

Each AMP contains specific objectives. One of these objectives is to change plant species composition. For example, the Little Divide AMP (0101) proposes to increase bluebunch wheatgrass from 3 to 30 percent, reduce sagebrush from 24 to 20 percent composition, and increase Sandberg bluegrass from 5 to 10 percent. The specific objectives for each AMP are available for review at the BLM office in Dillon, Montana.

The general long-term objective in changing species composition would be to improve range condition. The numerical data relative to species composition changes were derived by obtaining the existing species composition from field studies and then projecting the desired species composition generally obtained from Soil Conservation Service site potential information or other data derived from sites considered in excellent condition.

On a general basis, the composition of "decreaser" plants, usually the more desirable forage species, would increase. Table 3-13 lists some of the more common "decreaser" plants found in the study area, as well as "increaser" plants, plants of the original vegetation that increase in relative amounts from overgrazing, and "invader" plants, which make up less than 2.5 percent in the climax plant community but increase from overgrazing or disturbance.

A study conducted in a ponderosa pine-bunchgrass zone by McLean and Tisdale (1972) in British Columbia found that it took longer for vegetation to progress from poor to fair condition than from fair to good condition when protected from livestock grazing. They estimated that it takes 20 to 40 years for overgrazed ranges in the rough fescue and ponderosa pine zones to recover to excellent range condition when fully rested. Little change in plant composition took place inside exclosures placed on poor condition range in less than ten years following fencing. The main plants to increase with protection were bluebunch wheatgrass and rough fescue. The differences among exclosures in time required for improvement in range condition are no doubt related to soils, climate, competing species, and available seed source.

A study conducted in southwestern Montana by Mueggler (1975) found that it may take as much as six and eight years, respectively, for Idaho fescue and bluebunch wheatgrass of low vigor to recover normal vigor with complete protection. This study was in an 18-inch rainfall zone. Most of the study area is in a 14-inch to 16-inch rainfall zone. Plant vigor must be restored before range in poor condition can be improved. Because of the relatively long period of time required for range in poor condition to show significant improvement, a 25-year time frame was selected for projecting future range condition.

The factors that most influence or determine the ability of rangeland condition to improve are weather, predominant soil and vegetation types on the range site, the livestock grazing system imposed on the range site, and the degree of vegetation use by grazing animals. Nothing can be done about the weather, nor can soil types be changed. Vegetation can be altered with the use of techniques such as controlled burning, plowing and seeding, interseeding, and treatment with herbicides. The influence of livestock on both soils and vegetation can be manipulated through a prescribed grazing system to accomplish specific objectives and needs of a particular area and by adjustment of livestock numbers either to reduce or to increase the amount of forage removed from an area.

Burning, plowing and seeding, interseeding, and treatment with herbicides have immediate effects on vegetative composition and ecological range condition because all or a portion of the vegetation is removed from a site and, in the case of seeding, plant species are introduced or reestablished.

The effect of burning on grasses, forbs, and shrubs is closely tied to species and site. Quality and quantity of forage may be increased or decreased by burning because of changes in plant composition that vary with the time and intensity of burning.

Bailey (1977, p. 64) reports that cool season grasses should always be burned in the dormant season when the soil is moist, and that a tight bunchgrass such as Idaho fescue is more likely to be hurt by fire than an open-grown one such as bluebunch wheatgrass. Dormant season burning also stimulates most forbs.

Range shrubs, however, vary greatly with respect to their tolerance to fire. Willows will sprout and reoccupy a site following a burn, but sagebrush is usually destroyed by fire, and reestablishment must come by way of seed. The success of burn-

TABLE 3-13

COMMON DECREASER, INCREASER, AND INVADER PLANTS IN THE STUDY AREA

Decreaser Plants	Increaser Plants	Invader Plants
All wildryes	Western wheatgrass[a]	Cheatgrass
Bluebunch wheatgrass	Idaho Fescue[a]	Kentucky bluegrass
Slender wheatgrass	Needle-and-thread	Timothy
Indian ricegrass	Sandberg bluegrass	Foxtail barley
Mountain bromes	Blue grama	Curlycup gumweed
Bearded wheatgrass	Big sagebrush	Broom snakeweed
Columbia needlegrass	Greasewood	Dandelion
Winterfat	Conifers	Leafy spurge
	Shrubby cinquefoil	Knapweeds
	Lupine	Bull thistle
	Balsamroots	
	Yarrow	

SOURCE: U.S., Department of Agriculture, Soil Conservation Service, Technicians' Guide to Range Sites, Condition Classes, and Recommended Stocking Rates (October 1971).

a. Plant species is a decreaser on some range sites.

ing sagebrush is determined by the climax status of an area. If the land normally is dominated by sagebrush, as is much of the central intermountain area, one can never hope to keep out sagebrush permanently. If the land is climax grassland, as is much of the northern intermountain area, and sagebrush has invaded as a result of improper grazing, then proper grazing after burning could be expected to keep out sagebrush. The study area is in the transition zone between the central and intermountain areas.

Sagebrush control through burning has not been conducted on BLM lands in the study area; however, the Beaverhead National Forest has conducted numerous control burns over the past 15 to 20 years on the mountain big sage ecosystems. In most instances these burns have accomplished their objective of controlling sagebrush, increasing forage production, and improving range condition. It is estimated, however, that follow-up treatment may be necessary within 10 to 15 years after the initial control burn in order to maintain the increased forage production levels because of reinvasion of mountain big sage (Morris 1979; Greitl 1979).

Important considerations in obtaining successful vegetation establishment from a seeding are site selection and the method of soil preparation and seeding. The best returns from seeding in Montana consistently come from areas with little topographic variation and deep fertile soil (Wambolt 1976, p. 4). Annual precipitation should be at least 11 inches, and preferably 13 to 14 inches, if optimum returns are to be obtained (Cook 1976a, p. 42).

Complete control of brush prior to planting allows the seeded species to reach their full production potential in about five years (Cook 1966a, p. 45). Seedbed preparation by plowing removes all protective vegetation cover, exposing the soil to the forces of erosion for the period of time required to reestablish a protective vegetation cover. A successfully established and properly managed seeding will increase forage production and protect the soil, while failure or improper management will decrease forage production and accelerate erosion.

Interseeding the existing vegetation with better forage plants entails cutting furrows or otherwise destroying the existing vegetaton in narrow strips into which the desired plants are sowed. It does not remove all protective vegetation cover. Interseeding has several advantages over complete tillage: there is less disturbance to the site, the species introduced can be those that complement existing forage, forage production remains high during the treatment period, the introduction of legumes may result in higher production from the existing species, and it is less costly than complete cultivation.

Payne's studies of the effect of 2,4-D on sagebrush and associated vegetation in southwestern Montana indicate that grasses generally increased in cover following sagebrush control with the herbicide 2,4-D, while the composition of sagebrush and many forbs decreased (Payne n.d.). Spraying did not usually destroy sagebrush completely. Rubber rabbitbrush and woods rose tended to increase after spraying. Results indicated that reductions in forb cover, most likely in the 40 to 60 percent range, can be expected in the first year or two after spraying. Differences in forb populations between sprayed and unsprayed areas tend to narrow with time.

Cook (1963, cited in Stoddart, Smith, and Box 1975, p. 458) observed increased yields of three seeded grasses averaging 166 percent the third year after application of herbicides in northern Utah. Sprayed sagebrush ranges in Oregon produced more than 200 percent more forage over a three-year period than unsprayed ranges (Hyder and Sneva 1956, cited in Stoddart, Smith, and Box 1975, p. 458). How long increased yields may persist is unknown. Eckert et al. (1972, cited in Stoddart, Smith, and Box 1975, p. 458) reported that on a sagebrush range in northern Nevada, there were 400 percent increases in forage yield the second year after treatement, but by eight years, increased yields diminished to 149 percent. Johnson (1969) observed no difference in forage production on sprayed and unsprayed ranges six years after sagebrush spraying in Wyoming. Follow-up treatment may be necessary in 10 to 15 years, as discussed earlier for control burns.

Grazing systems can be designed to meet the physiological needs of specific plant species and management objectives, as discussed earlier. Livestock numbers can also be adjusted.

A review of available literature indicates there is general agreement that heavy seasonal grazing is detrimental to range condition, while light seasonal grazing will maintain or improve condition on many ranges where adequate forage and space is available (Owensby, Smith, and Anderson 1973; Rogler 1951; McIlvain and Savage 1951; Smoliak 1960; Hyder and Sawyer 1951; Hubbard 1951; Lang 1973; Gifford and Hawkins 1976). A study conducted in southwestern Montana by Evanko and Peterson (1955) showed no significant differences in amount and kind of cover and frequency of plant occurrence between lightly grazed plots and plots on two exclosures that were protected from grazing for 15 years and 26 years, respectively.

Most cited references agree that forage utilization can be heavier with a grazing system than without a system, and still maintain or improve range condition. Willard and McKell (1973) indicate that most range plants have evolved under grazing pressure and have adjusted their structure and physiology to withstand some degree of use.

Adjustment of livestock numbers to obtain proper use is the most important controllable factor in maintaining or improving range condition. Without proper use the beneficial effects from almost any other measure can be nullified or reduced in effectiveness.

It is generally agreed that heavy continuous grazing causes a decrease in plant vigor and range condition and an increase in undesirable grass and forbs. It is difficult to determine the proper numbers of animals that will result in maximum yield of livestock products and yet not endanger soil or range condition. Many variables are involved, such as weather, soil type, quantity and quality of vegetation, topography, kind of stock, management objectives, wildlife populations, season grazed, grazing system, and distribution of grazing animals on the range. Stoddart (1960) indicates that once an estimate of initial stocking rate is determined, trend records must be kept to measure changes in such things as vegetation, erosion condition, and litter on the ground. If any undesirable trends are noted, then either livestock numbers must be reduced or management changed. Desirable trends would also be an indicator that livestock use could be increased without reversing condition trend and adversely affecting the vegetative composition and plant vigor.

Projecting Future Range Condition

Appendix 3 shows the existing range condition and the projected range condition for the proposed action by the year 2010. The vegetation section of table 1-9 (chapter 1) partially summarizes Appendix 3 and shows the projected range condition for the proposed action and all other alternatives.

No attempt was made to project range conditon on the non-AMP allotments. Continuous moderate or heavy spring and summer grazing of the non-AMP allotments by livestock and/or wildlife could potentially cause a decrease in key species vigor, reproduction, litter accumulation, and seedling establishment. On the other hand, light grazing or proper management by the livestock operator could potentially maintain or even improve range condition.

In order to project the future range condition within the study area if the proposed action should be implemented, a system was devised in an attempt to account for the variability in soils, vegetation, and grazing systems. Table 3-14 is a summary of these criteria and their relative influence on range condition. Stocking rate was not used as a variable because it would be based on actual use records and studies or the range forage survey, and it is assumed to be proper.

Soils vary greatly in their capability to grow certain kinds and amounts of vegetation. Significant soil determinants include moisture absorbtion and storage, fertility, essential element balance, pH, and soluble salt concentration. The soils were ranked according to their potential to produce forage. Soils were aggregated by range site groups as follows:

Sands (Sa); sandy (Sy); silty (Si); clayey (Cy).

Shallow to gravel (SwG); thin hilly (TH); stony (St).

Dense clay (DC); shallow (Sw); shallow clay (SwC).

The product of the potential for change criteria (soils, vegetation, and grazing system) and acres by range condition class is the basis for projecting changes in range condition by the year 2010. For example, range condition projections for the Preacher Creek allotment were estimated as shown in table 3-15. When more than one range site group occurred on an allotment, as on Wall Creek, the potential for change was weighted as shown in table 3-16. Adjustments were then made for allotments with proposed sagebrush spraying or burning projects.

No adjustments were made for proposed seeding projects because no seed mixture has been proposed. Use of introduced species in the seed mixture could lower the range condition class in both the short term and the long term, because

TABLE 3-14

THE RELATIVE INFLUENCE OF SOILS, VEGETATION, AND GRAZING SYSTEMS ON RANGE CONDITION

Criterion	Percentage of Potential for Change
Soil Groups on Range Sites	
Group I (sands, sandy, silty, clayey)	75
Group II (shallow to gravel, thin hilly, stony)	60
Group III (dense clay, shallow, shallow clay)	50
Vegetation	
Grassland	
Good to excellent	15
Fair to good	75
Poor to fair	20
Sagebrush	
Good to excellent	0
Fair to good	75
Poor to fair	100
Meadow	100
Mountain Shrubs and Conifers	0
Grazing System	
Fall-winter	100
Rest-rotation	75
Deferred rotation and high intensity/short duration	50
Deferred	25
Alternate grazing	5

SOURCE: BLM, 1979.

TABLE 3-15

EXAMPLE OF RANGE CONDITION PROJECTION WITH ALL ONE RANGE SITE GROUP
(Preacher Creek Allotment Range Condition for the Year 2010)

Vegetation Type	Existing Range Condition					Projected Range Condition				
	Acreage					Acreage				
	Excellent	Good	Fair	Poor	Total	Excellent	Good	Fair	Poor	Total
Meadow[a]		55	3		58	21	35	2		58
Sagebrush[b]		114	88		202		139	63		202
Conifer[c]				205	205				205	205
Waste[d]					279					279
Total		169	91	205	744	21	174	65	205	744

SOURCE: BLM, 1979.

NOTE: Range site (all Group I) = 75.00
Grazing system (deferred rotation) = X 50.00
37.50%

a. (37.5%) (100%) (55 acres) = 21 acres to move up one condition class.
(37.5%) (100%) (3 acres) = 1 acre to move up one condition class.

b. (37.5%) (0%) (144 acres) = 0 acres to move up one condition class.
(37.5%) (75%) (88 acres) = 25 acres to move up one condition class.

c. Conifer types not expected to change.

d. Waste acreage not included in range condition projections.

TABLE 3-16

EXAMPLE OF RANGE CONDITION PROJECTION WITH MORE THAN ONE RANGE SITE GROUP
(Wall Creek Allotment)

Where more than one range site group occurred on an allotment, as on Wall Creek, the potential for change was weighted as follows:

Range Site	Potential for Change
Group I (40% of allotment acres)	(40%) x 75% = 30%
Group II (60% of allotment acres)	(60%) x 60% = 36%
Weighted average Potential for Change	66%

Remaining calculations were similar to example shown in table 3-15.

SOURCE: BLM, 1979.

introduced species are not part of the climax vegetation used to determine range condition.

Some native species would become established on seedings in the long term, and native species would remain as a component of the species composition where interseeding would take place. The use of native species, on the other hand, could potentially improve the seeded acres to excellent condition in both the short and long terms.

Grazing systems were ranked by their potential influence on range condition. A study of the influence of grazing systems on soils and vegetation conducted in the Missouri Breaks EIS area by Willard and Herman (1977) indicated that rest-rotation grazing generally allowed for better vigor of key forage species, faster water infiltration into the soil, more litter, reduced amounts of plains prickly pear, and greater production of desirable forage grasses. Only winter grazing allowed for better soil and plant condition than did rest-rotation grazing.

Conversely, the report said that season-long grazing was the most detrimental to soil and plant conditions. It is almost unanimously agreed that when rangelands are grazed heavily and continuously throughout the growing season every year, the original palatable species are replaced by less desirable species (Smith 1940).

The grazing systems now in operation and those that would be implemented by the proposed action were ranked from high to low on the basis of their potential for influencing range conditions. The ranking was based on the previously discussed literature, past experience, and professional judgment.

Vegetation type was the other factor used in determining the projected change in range condition if the preferred action were implemented. On grass types, potential for improving range condition from poor to fair is often limited by the sodbound characteristics of blue grama. A similar limitation could occur when condition class changes from good to excellent are projected, because of the dominance of Idaho fescue, an increaser. The greatest potential for change would be on grass types in fair condition, in which 75 percent of the acreage could potentially move up to good by 2010.

Sagebrush types in poor or fair condition would respond more than sites in good condition. Again, the dominance of Idaho fescue on good condition sagebrush types would be a limiting factor. The amount of topsoil, however, would be limiting in the lower condition classes.

For meadow, no limitation was imposed on the potential for improvement, regardless of present condition class. Therefore, 100 percent of the acreage for these vegetation types could potentially move up one condition class.

Since most of the mountain shrub type is in good to excellent condition, grazing management is not expected to cause any significant changes. Waste and conifer acreage were not included in range condition projections.

Estimates of future range condition for the alternatives to the proposed action were based on professional judgment, cited literature, and differences between an alternative and the proposed action such as stocking rate, grazing systems, and season of use.

A. The Proposed Action

Since current soils and vegetation conditions are constant for all alternatives, the management variables are (1) amount of livestock use, (2) season of use, (3) grazing systems, and (4) project developments. With livestock use adjusted downward, to 110,033 AUMs, or 12 percent below the current level, less forage would be consumed by livestock. To this extent, range condition and trend would probably be favored, at least in the short term, by improved plant vigor. Also, early spring use would be reduced on 160 AMP allotments, and this again would improve plant vigor.

All AMP allotments would be managed under grazing management systems designed to meet the physiological needs of most plant species. Although the proposed action would generally benefit riparian habitat, grazing systems on 40 allotments would not fully meet riparian vegetation potentials (see the "Riparian Habitat" section under "Terrestrial Wildlife" in this chapter). Range trend is not likely to change on the non-AMP allotments and unallotted areas, as little change in management is proposed.

The 8,083 acres of sagebrush control would hasten improvement in range condition. The 1,331 acres of plowing and seeding would be considered tame pasture if introduced species were used; thus, it would not contribute to improved native range condition acreage. The use of native species for the seeding, however, would improve range condition. (See Appendix 14 for allotments that would have sagebrush control or plowing and seeding.)

Range developments and vegetation manipulation projects would disturb about 9,648 acres in the short term (see Appendix 14). It is estimated that 0.1 acres would be disturbed through concentrated livestock use around each water trough installation, so about 19 acres would remain disturbed and out of production for the life of the developments.

The proposed action would result in a general upward trend and long-term improvement in range condition, as shown in Appendix 3 and summarized in table 3-17. Methodology for projecting range condition is discussed earlier in this section, under "Projecting Future Range Condition."

B. Limited Action

This alternative would also adjust livestock use downward, to 110,033 AUMs, or 12 percent below the current level; therefore, improved range condition and trend would be favored, as discussed for the proposed action. Early spring use would be reduced on the 22 AMPs to be revised, which would account for only a modest improvement in plant vigor.

Only 48 (existing and revised AMPs) of the 186 allotments identified for AMPs would be operational. This would leave 75 percent of the allotments identified for AMPs lacking proper grazing management and not satisfying the physiological plant requirements. This would be likely to result in an overall decline in range condition and trend. Only a slight improvement in riparian habitat would occur as a result of proposed reductions in stocking ranges. Grazing management on 54 allotments would not provide for full riparian vegetation potentials (see the "Riparian Habitat" section under "Terrestrial Wildlife" in this chapter). Range trend is not likely to change on the non-AMP allotments and unallotted areas, because there would be little change in management under this alternative.

The 660 acres of prescribed burning would hasten improvement of range condition, but would have a minimal effect overall. The prescribed burning would occur on the Lelow Basin allotment, as shown on page 13 of Appendix 14.

Range developments and vegetation manipulation projects would disturb about 1,511 acres in the short term (see Appendix 14). It is estimated that 0.1 acres would be disturbed through concentrated livestock use around each water trough installation, so about 2 acres would remain disturbed and out of production for the life of the development.

The limited action alternative would result in a general downward trend and long-term deterioration in range condition, as shown in table 3-18. Estimates of future range condition were based on professional judgment, cited literature, the methodology for projecting range condition discussed earlier in this chapter, and differences between this alternative and the proposed action such as stocking rate, grazing systems, season of use, and the number of vegetation manipulation projects proposed.

C. Improved Watershed Values and Wildlife Habitat

The 40 percent reduction in livestock use proposed in this alternative would strongly favor improvement of plant vigor through nonuse of the vegetation by livestock. An initial stocking level of 74,785 AUMs is proposed. A significant improvement in range condition and trend would be likely to occur in the short term, with a leveling off and stagnation forecast in the long term. Early spring use would be reduced on 171 allotments, again substantially favoring improved plant vigor.

AMP allotments would be managed under grazing management systems designed to meet the physiological needs of nearly all plant species. Under this alternative, full riparian habitat potential would be provided on all AMP allotments. Only a few isolated tracts of public land would be expected to reach their full riparian potential (see the "Riparian Habitat" section under "Terrestrial Wildlife" in this chapter). Range trend would not be likely to change on the non-AMP allotments and unallotted areas, as little change in management is proposed.

The 3,922 acres of sagebrush control would hasten improvement in range condition. The 2,150 acres of plowing and seeding would be considered tame pasture if introduced species were used; thus, it would not contribute to improved native range condition. The use of native species for the seeding, however, would improve range condition. (See Appendix 14 for allotments that would have sagebrush control or plowing and seeding.)

Range developments and vegetation manipulation projects would disturb about 6,210 acres in the short term (see Appendix 14). It is estimated

TABLE 3-17

CURRENT AND LONG-TERM PROJECTED RANGE CONDITION BY VEGETATION TYPE FOR THE PROPOSED ACTION

	Range Condition					
	Excellent (acres)	Good (acres)	Fair (acres)	Poor (acres)	Not Identified (acres)	Total (acres)
Current Situation						
Grasslands	51,261	126,847	69,283	5,014	281	252,686
Meadows	12	4,173	4,565	835	5	9,590
Sagebrush	30,661	225,744	135,289	5,497	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	90,646	369,877	222,639	15,087	92,505	790,754
Proposed Action						
Grasslands	60,445	141,757	45,699	4,504	281	252,686
Meadows	1,644	4,292	3,206	443	5	9,590
Sagebrush	34,454	269,885	89,835	3,017	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	105,255	429,047	152,242	11,705	92,505	790,754
Percentage of change	+16.1%	+16.0%	-31.6%	-22.4%	0	

SOURCE: BLM, 1979.

TABLE 3-18

CURRENT AND LONG-TERM PROJECTED RANGE CONDITION BY VEGETATION TYPE FOR ALTERNATIVE B: LIMITED ACTION

	Range Condition					
	Excellent (acres)	Good (acres)	Fair (acres)	Poor (acres)	Not Identified (acres)	Total (acres)
Current Situation						
Grasslands	51,261	126,847	69,283	5,014	281	252,686
Meadows	12	4,173	4,565	835	5	9,590
Sagebrush	30,661	225,744	135,289	5,497	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	90,646	369,877	222,639	15,087	92,505	790,754
Limited Action						
Grasslands	50,812	124,039	70,985	6,569	281	252,686
Meadows	0	3,768	4,709	1,108	5	9,590
Sagebrush	29,895	215,223	141,841	10,232	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	89,419	356,143	231,037	21,650	92,505	790,754
Percentage of change	- 1.4%	- 3.7%	+ 3.8%	+43.5%	0	

SOURCE: BLM, 1979.

that 0.1 acres would be disturbed through concentrated livestock use around each water trough installation, so about 19 acres would remain disturbed and out of production for the life of the development.

The watershed/wildlife alternative would result in a general upward trend and long-term improvement in range condition, as shown in table 3-19. Estimates of future range condition were based on professional judgment, cited literature, the methodology for projecting range condition discussed earlier in this section, and differences between this alternative and the proposed action such as stocking rate, grazing systems, season of use, and the number of vegetation manipulation projects proposed.

D. Accelerated Livestock Forage Development

Livestock use would quickly increase to 162,774 AUMs, an increase of 22 percent, compared to the current level, with implementation of the vegetation manipulation projects of this alternative. This increase in livestock use would not contribute to improved plant vigor. However, the reduction of early spring use on 160 AMP allotments would provide for improved plant vigor. Livestock stocking would always be equal to carrying capacity.

Physiological needs of most plant species would be satisfied under the grazing management systems proposed for this alternative. Riparian habitat potentials would not be provided for in the grazing systems proposed on 54 allotments. This and the higher level of livestock use proposed would generally result in a slight decline in riparian habitat condition (see the "Riparian Habitat" section under "Terrestrial Wildlife" in this chapter) and in the meadow vegetation type. No change in range trend is anticipated for the non-AMP allotments and unallotted areas, as little change in management is proposed.

The 58,802 acres of sagebrush control would hasten improvement in range condition. The 13,152 acres of plowing and seeding would be considered tame pasture if introduced species were used; thus, it would not contribute to improved range condition acreage. The use of native species for the seeding, however, would improve range condition. (See Appendix 14 for allotments that would have sagebrush control or plowing and seeding.)

Range developments and vegetation manipulation projects would disturb about 69,805 acres in the short term (see Appendix 14). It is estimated that 0.1 acres would be disturbed by concentrated livestock use around each water trough installation, so about 19 acres would remain disturbed and out of production for the life of the developments.

The accelerated livestock forage development alternative would result in a general upward trend and long-term improvement in range condition, as shown in table 3-20. Estimates of future range condition were based on professional judgment, cited literature, the methodology for projecting range condition discussed earlier in this section, and differences between this alternative and the proposed action such as stocking rate, grazing systems, season of use, and the number of vegetation manipulation projects proposed.

E. No Action

Since livestock grazing use would not change from the current level (125,377 AUMs), an over-obligation in stocking would occur. This would result in lower plant vigor and a gradual decline in range condition and trend.

No reduction in spring use is proposed, nor would revisions be made on 22 existing AMPs. Grazing management systems would not be implemented on the 138 proposed AMP allotments. Hence, the physiological needs of key forage species generally would not be satisfied. Riparian habitat potential would not be satisfied on 54 allotments under this alternative. However, a slight improvement is forecast for those allotments with implemented management plans designed to improve riparian habitat (see the "Riparian Habitat" section under "Terrestrial Wildlife" in this chapter).

No acreage would be disturbed or removed from production as a result of range developments or vegetation manipulation projects, because there would be no developments or projects.

The no action alternative would result in a general downward trend and long-term deterioration in range condition, as shown in table 3-21.

Estimates of future range condition were based on professional judgment, cited literature, and current range trend as shown in Appendix 3.

F. Elimination of Livestock Grazing from Public Lands

This alternative assumes the complete removal of livestock from public lands. With no use by

TABLE 3-19

CURRENT AND LONG-TERM PROJECTED RANGE CONDITION BY VEGETATION TYPE
FOR ALTERNATIVE C: IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT

	Range Condition					
	Excellent (acres)	Good (acres)	Fair (acres)	Poor (acres)	Not Identified (acres)	Total (acres)
Current Situation						
Grasslands	51,261	126,847	69,283	5,014	281	252,686
Meadows	12	4,173	4,565	835	5	9,590
Sagebrush	30,661	225,744	135,289	5,497	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	90,646	369,877	222,639	15,087	92,505	790,754
Improved Watershed Values and Wildlife Habitat						
Grasslands	60,445	141,757	45,699	4,504	281	252,686
Meadows	1,644	4,292	3,206	443	5	9,590
Sagebrush	33,506	273,311	88,176	2,198	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	104,307	432,473	150,583	10,886	92,505	790,754
Percentage of change	+15.1%	+16.9%	-32.4%	-27.8%	0	

SOURCE: BLM, 1979.

TABLE 3-20

CURRENT AND LONG-TERM PROJECTED RANGE CONDITION BY VEGETATION TYPE FOR ALTERNATIVE D: ACCELERATED LIVESTOCK FORAGE PRODUCTION

	Range Condition					
	Excellent (acres)	Good (acres)	Fair (acres)	Poor (acres)	Not Identified (acres)	Total (acres)
Current Situation						
Grasslands	51,261	126,847	69,283	5,014	281	252,686
Meadows	12	4,173	4,565	835	5	9,590
Sagebrush	30,661	225,744	135,289	5,497	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	90,646	369,877	222,639	15,087	92,505	790,754
Accelerated Livestock Forage Development						
Grasslands	60,445	141,757	45,699	4,504	281	252,686
Meadows	0	3,851	4,649	1,085	5	9,590
Sagebrush	35,853	288,255	70,429	2,634	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	105,010	446,978	134,275	11,964	92,505	790,754
Percentage of change	+15.8%	+20.8%	-39.7%	-20.7%	0	

SOURCE: BLM, 1979.

TABLE 3-21

CURRENT AND LONG-TERM PROJECTED RANGE CONDITION BY VEGETATION TYPE FOR ALTERNATIVE E: NO ACTION

	Range Condition					
	Excellent (acres)	Good (acres)	Fair (acres)	Poor (acres)	Not Identified (acres)	Total (acres)
Current Situation						
Grasslands	51,261	126,847	69,283	5,014	281	252,686
Meadows	12	4,173	4,565	835	5	9,590
Sagebrush	30,661	225,744	135,289	5,497	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	90,646	369,877	222,639	15,087	92,505	790,754
No Action						
Grasslands	50,029	122,785	73,022	6,569	281	252,686
Meadows	0	3,768	4,709	1,108	5	9,590
Sagebrush	29,588	212,144	144,551	10,908	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	88,329	351,810	235,784	22,326	92,505	790,754
Percentage of change	- 2.6%	- 4.9%	+ 5.9%	+48.0%	0	

SOURCE: BLM, 1979.

TABLE 3-22

CURRENT AND LONG-TERM PROJECTED RANGE CONDITION BY VEGETATION TYPE FOR ALTERNATIVE F: ELIMINATION OF LIVESTOCK GRAZING FROM PUBLIC LANDS

	Range Condition					
	Excellent (acres)	Good (acres)	Fair (acres)	Poor (acres)	Not Identified (acres)	Total (acres)
Current Situation						
Grasslands	51,261	126,847	69,283	5,014	281	252,686
Meadows	12	4,173	4,565	835	5	9,590
Sagebrush	30,661	225,744	135,289	5,497	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	90,646	369,877	222,639	15,087	92,505	790,754
Elimination of Livestock Grazing from Public Lands						
Grasslands	53,313	132,638	61,653	4,801	281	252,686
Meadows	338	4,200	4,291	756	5	9,590
Sagebrush	32,433	238,744	121,616	4,398	1,024	398,215
Mountain shrub, conifer, waste	8,712	13,113	13,502	3,741	91,195	130,263
Total	94,796	388,695	201,062	13,696	92,505	790,754
Percentage of change	+ 4.6%	+ 5.1%	- 9.7%	- 9.2%	0	

SOURCE: BLM, 1979.

livestock, plant vigor would improve substantially in the short term, but stagnation would be likely to occur in the long term. In addition, no new AMPs would be implemented, all existing AMPs would be terminated, and no new projects would be developed except for required fencing to exclude livestock from public lands.

Riparian habitat would improve significantly, with about 99 percent expected to be in satisfactory condition in the long term (see the "Riparian Habitat" section under "Terrestrial Wildlife" in this chapter).

Fencing of public land boundaries would disturb about 2,700 acres in the short term; however, no land acreage would be removed from production in the long term (see Appendix 14).

The alternative to eliminate grazing would result in a general upward trend and long-term improvement in range condition, as shown in table 3-22.

Estimates of future range condition were based on professional judgment and on cited literature and studies.

Conclusions

Overall range condition would improve by the year 2010 on the existing, revised, and proposed AMP allotments if Alternative A (the Proposed Action), Alternative C (Improved Watershed Values and Wildlife Habitat), Alternative D (Accelerated Livestock Forage Development), or Alternative F (Elimination of Livestock Grazing from Public Lands) were implemented. Alternatives B (Limited Action) and E (No Action) would result in a deterioration of overall range condition. The projected range condition by the year 2010 for the proposed action and each alternative is graphically depicted in figure 3-5. The current range condition is also shown, for comparative purposes.

Riparian habitat condition would remain largely unchanged in the limited action, no action, and accelerated livestock forage development alternatives. Moderate riparian improvement would be expected for the proposed action, and major improvement would occur under the alternatives to improve watershed values and wildlife habitat and to eliminate livestock grazing from public lands (see the "Riparian Habitat" section under "Terrestrial Wildlife" in this chapter).

Public land that would be subject to short-term and long-term vegetation disturbance under the proposed action and each alternative is shown in table 3-23.

Threatened and Endangered Plants

As discussed in chapter 2, only four species are recognized as potentially endangered in Montana. The Lemhi penstemon species has been positively identified as occurring in at least one location on public lands in the study area, and there is a definite possibility it may occur at other locations on public lands. It is already documented (Watson 1976) that livestock are adversely affecting Lemhi penstemon by grazing, and that mechanical damage to individual plants from livestock is a real concern.

Mitigation in the form of a fence to exclude livestock from the area around the identified site has been accepted, and the fence will be constructed. This will provide the plants protection from livestock grazing and increase the potential for survival and possible expansion of the expansion of the population. No adverse impacts to threatened and endangered plants should occur under any of the alternatives.

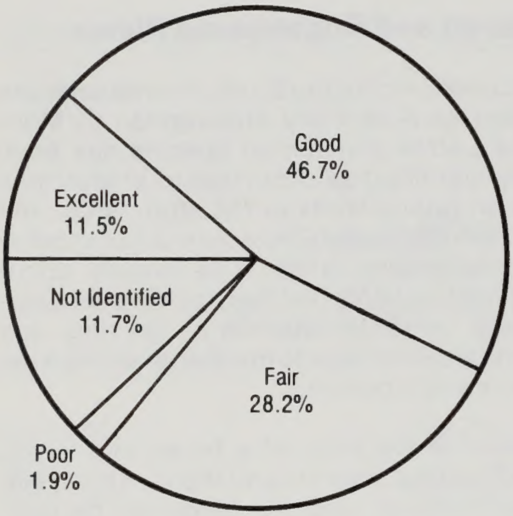
Noxious and Poisonous Plants

Abbott (1962) indicates that a great increase in prominence of weeds is very likely to occur as a result of a one-year rest on deteriorated range. Weeds or their seeds are often abundant on deteriorated range, but the plants are inconspicuous because the vegetation, including most weeds, is closely grazed. Rest would allow the weeds a chance to grow and become conspicuous. Abbott also indicates that weeds are crowded out by native grasses as range condition improves.

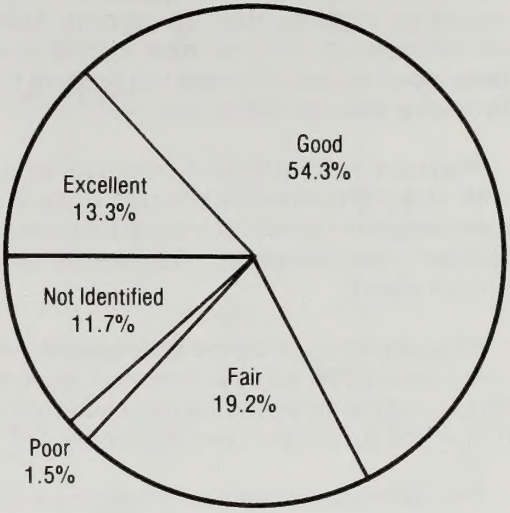
Annual weeds would be reduced more by improved range condition than perennial weeds. Perennial noxious weeds and poisonous plants could decrease because of competition resulting from improved range condition and increased grass plant density. On the other hand, poisonous or noxious plants could increase with implementation of grazing systems because ecological conditions favorable to desirable grasses and perennial forbs also would be favorable to an increase in some poisonous or noxious plants.

Poisonous and noxious plants often become established where the existing vegetation is disturbed or removed and not revegetated promptly with desirable vegetation, especially when there is a viable seed source nearby. It is generally agreed that prevention of poisonous and noxious

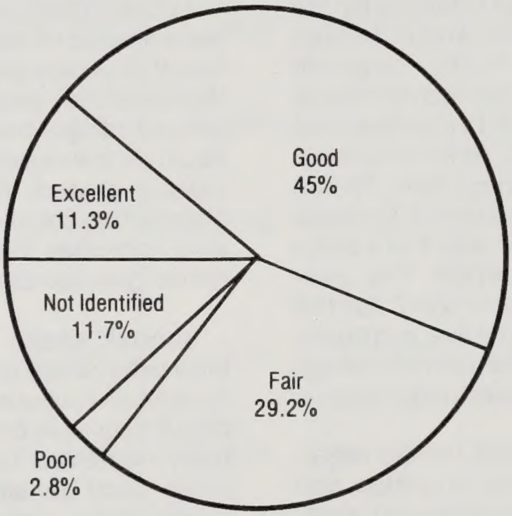
Figure 3-5: RANGE CONDITION: CURRENT AND PROJECTED FOR 2010 FOR EXISTING, REVISED, AND PROPOSED AMP ALLOTMENTS (BLM land only)



Current Range Condition.



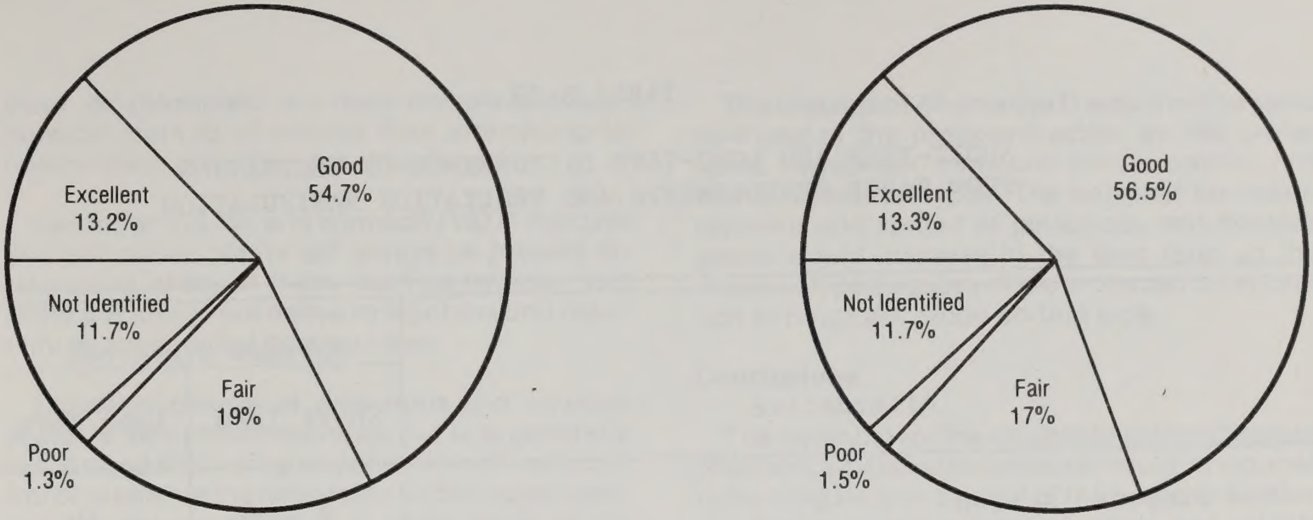
Alternative A:
The Proposed Action.



Alternative B:
Limited Action.

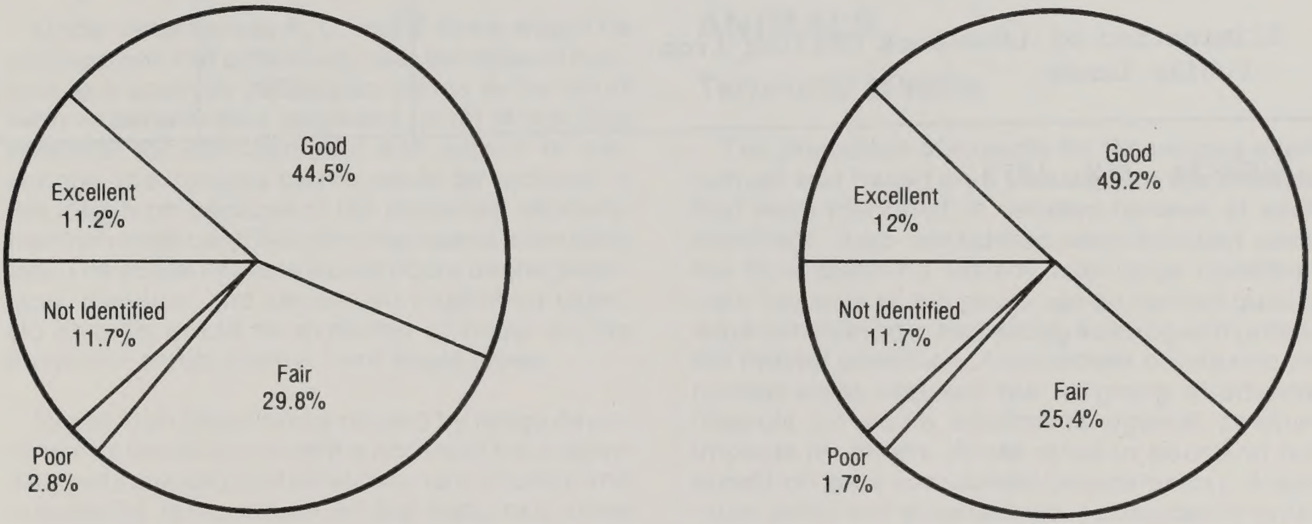
SOURCE: BLM, 1979.

Figure 3-5: (continued)



Alternative C:
Improved Watershed Values
and Wildlife Habitat.

Alternative D:
Accelerated Livestock
Forage Development.



Alternative E:
No Action.

Alternative F:
Elimination of Livestock
Grazing from Public Lands.

SOURCE: BLM, 1979.

NOTE: "Not identified" indicates soils information is lacking or that an area was not identified as a range site.

TABLE 3-23

SHORT-TERM AND LONG-TERM DISTURBANCE OF VEGETATION FROM RANGE DEVELOPMENTS AND VEGETATION MANIPULATION

Alternative	Acreage Disturbed	
	Short Term	Long Term
A: The Proposed Action	9,648	19
B: Limited Action	1,511	2
C: Improved Watershed Values and Wildlife Habitat	6,210	19
D: Accelerated Livestock Forage Development	69,805	19
E: No Action	0	0
F: Elimination of Livestock Grazing from Public Lands	2,700	0

SOURCE: BLM, 1979.

plant establishment is a more reliable and economical method of control than attempting to control them after they are established.

Leininger, Taylor, and Wambolt (1977) indicate that poisonous plants will always be present on rangeland. Many of them, such as larkspur and white pointloco, are native to Montana and naturally occur in range communities.

Chemical control of poisonous and noxious plants is often recommended, but is is generally recognized that a single application will not control or eradicate the target plants. Biological control has proven effective in some areas of the United States in controlling specific undesirable species. Research is being conducted in Montana on the biological control of Saint John's wort, musk thistle, spotted knapweed, and leafy spurge. The Rangeland Insect Laboratory, U.S. Department of Agriculture, at Bozeman, Montana, has had some success in this endeavor, especially with control of musk thistle.

Under Alternatives A, C, and F there would be an apparent and potentially real increase of noxious and possibly poisonous plants in the short term on deteriorated range as a result of rest. The potential for establishment and spread of poisonous and noxious plants would be reduced in the long term because of the projected improvement in range condition and increased plant density. The above impacts would occur on the grassland, meadow, and sagebrush vegetation types. No change would be expected to occur on the mountain shrub, conifer, and waste types.

Vegetation disturbance caused by range developments would increase the potential for poisonous and noxious plant establishment. Prompt and successful revegetation of the disturbed areas would mitigate this impact. Control of poisonous and noxious plants with annual herbicide treatment and use of biological agents, if available, would also be possible mitigating measures.

The potential for establishment and spread of poisonous and noxious plants would increase in the long term under alternatives B and E because of the projected deterioration in range condition on the grasslands, meadow, and sagebrush vegetation types. No change would be expected on the mountain shrub, conifer, and waste types. Control of poisonous and noxious plants with annual herbicide treatment and use of biological agents, if available, would be possible mitigating measures.

The impacts of Alternative D would be the same as those of the proposed action on the grasslands, sagebrush, mountain shrub, conifer, and waste vegetation types. The potential for establishment and spread of poisonous and noxious plants would increase in the long term on the meadow type because of the projected deterioration in range condition on that type.

Conclusions

The potential for the establishment and spread of poisonous and noxious plants would be reduced in the long term as a result of the proposed action (A), the improved watershed values and wildlife habitat alternative (C), the accelerated livestock forage development alternative (D), or the alternative to eliminate livestock grazing from public lands (F). The potential for the establishment and spread of poisonous and noxious plants would be increased in the long term as a result of the limited action or no action alternatives (B or E).

ANIMALS

Terrestrial Wildlife

The prediction of impacts for the various alternatives was based on a summary of the impacts that were identified in detailed reviews of each allotment. Also considered were transect data, the BLM planning system, and range condition data. Impacts of big game use on habitat quality were considered in evaluating existing and potential habitat condition. Assessment of impacts on habitat areas required the weighing of adverse impacts on some allotments against positive impacts on others. Areas rated in poor and fair condition were considered unsatisfactory. Areas rated good and excellent were considered satisfactory. See chapter 2 for an explanation of how condition was determined.

Mule Deer

Under Alternative A, the proposed action, mule deer summer habitat would be rated in overall good condition on each of the 13 major summer-fall habitats (table 3-24). This includes substantial improvement on 5 of the 13 areas, from unsatisfactory (poor and fair condition) to satisfactory (good and excellent condition). On two areas, Centennial Mountains and Tendoy Mountains, deer summer habitat quality would decline slightly because of changes in stock distribution and slight increases in stocking rates from the current situation. Of allotments containing deer summer-

TABLE 3-24

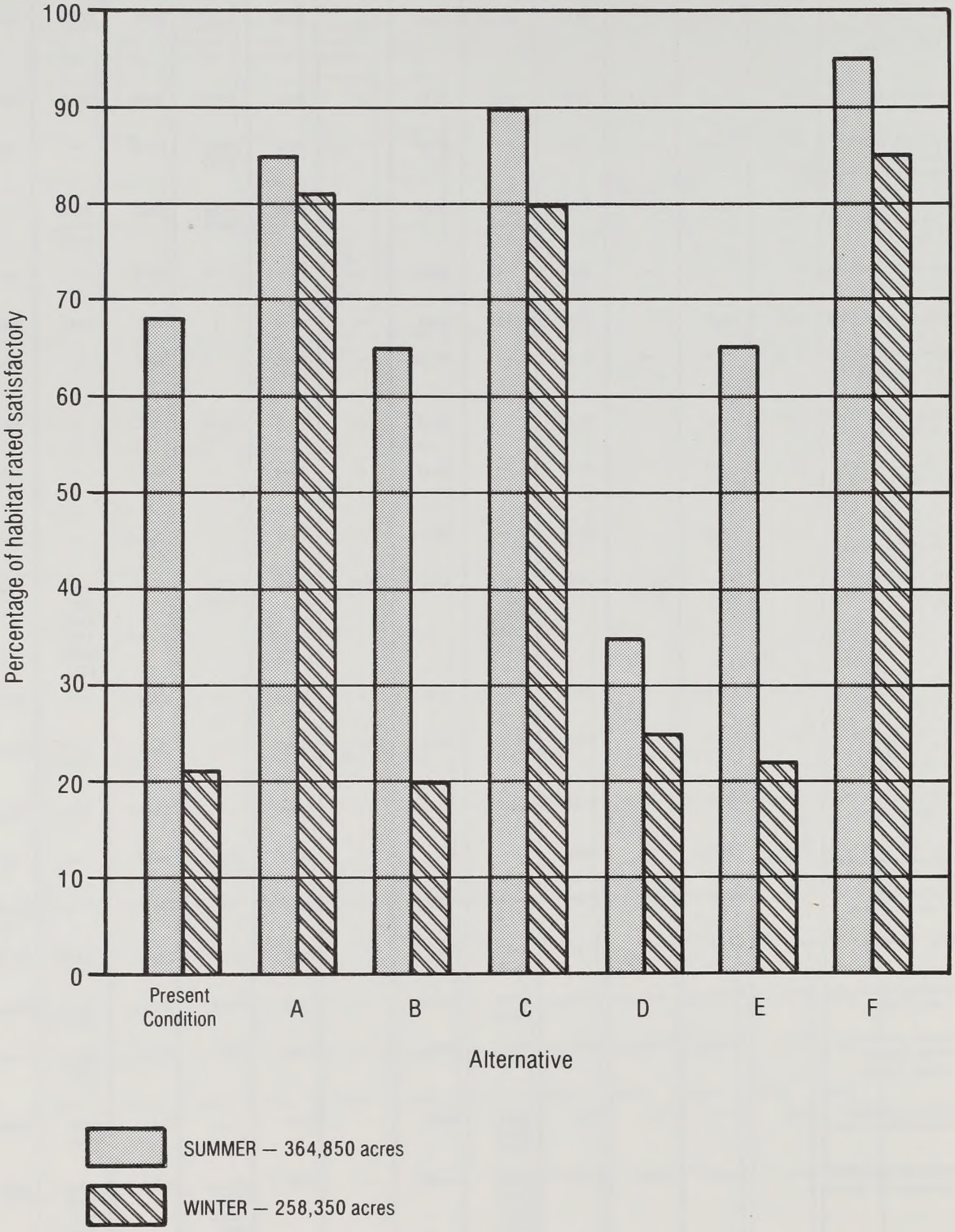
IMPACTS IN DEER HABITAT AREAS

		A: The Proposed Action		B: Limited Action		C: Better Watershed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
Season/ Habitat Area	Current Condition	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Resid. Adverse Impacts
Summer-fall													
Lima Peaks-Pine Top Hill	Fair	Good	--	Fair	0270, 0029	Excel.	--	Poor	0270 0029	Fair	0270 0029	Excel.	--
Tendoy Mountains	Excel.	Good	--	Excel.	--	Excel.	--	Fair	0748 0108	Excel.	--	Excel.	--
Upper Sheep Creek-Medicine Lodge-Horse Prairie	Poor	Good	--	Fair	0741, 0101, 0108, 0748, 0757, 0132	Excel.	--	Poor	0101, 0108, 0748,	Poor	0741, 0101, 0108, 0748, 0757, 0132	Excel.	--
Blacktail Ridge-Upper Sage Creek	Good	Good	0013, 0007	Good	0013, 0007	Excel.	--	Fair	0727, 0136, 0002, 0013	Good	0013, 0007, 0002	Excel.	--
Clover-Blacktail	Good	Good	--	Good	--	Good	--	Fair	0012	Good	--	Excel.	--
Centennial Mountains	Excel.	Good	0730	Excel.	--	Excel.	--	Fair	0730, 0040, 0152	Excel.	--	Excel.	--
North Centennial	Excel.	Excel.	--	Excel.	--	Excel.	--	Poor	0152, 0172, 0734	Excel.	--	Excel.	--
East Fork Blacktail-Robb-Ledford	Good	Good	--	Good	--	Excel.	--	Good	--	Good	--	Excel.	--
Tobacco Root Mountains	Fair	Good	--	Good	--	Excel.	--	Good	0475	Fair	0507, 0475, 0421	Excel.	--
Highland Mountains	Good	Good	--	Good	--	Good	--	Fair	0268, 0324, 0308	Good	--	Good	--
McCartney Mountain	Poor	Good	--	Fair	0314	Good	--	Fair	0314, 0323	Poor	0314 0323	Good	--
Sweetwater	Good	Good	--	Good	--	Good	--	Fair	0518, 0471, 0516	Good	--	Good	--
Ruby Mountain	Fair	Good	--	Fair	0530, 0479	Excel.	--	Fair	0498, 0479	Fair	0530, 0479	Excel.	--
Winter-spring													
Sheep Creek-Little Sheep Creek	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
North Tendoy Mountains	Good	Fair	0108	Good	--	Good	--	Fair	0748	Good	--	Good	--
South Tendoy Mountains	Good	Good	--	Good	--	Good	--	Fair	0699	Good	--	Good	--
Upper Sheep Creek-Medicine Lodge-Horse Prairie	Poor	Fair	0019	Poor	0019	Good	--	Fair	0019	Poor	0019	Good	--
Clark Canyon-Gallagher Creek-Small Horn Canyon	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Maurer-Ashbough-Spring Gulch-Red Butte	Good	Good	--	Good	--	Good	--	Fair	0198	Good	--	Good	--

		A: The Proposed Action		B: Limited Action		C: Better Watershed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
Season/ Habitat Area	Current Condition	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Resid. Adverse Impacts
Jake Canyon-Price Canyon Bull-Heifer Creek	Fair	Good	--	Fair	0138	Good	--	Good	--	Fair	0138	Good	--
Sage Creek-Basin Creek	Poor	Poor	0143	Poor	0143	Fair	--	Poor	0143	Poor	0143	Fair	--
Roberts Gulch-Red Butte-Bachelor Mountain	Good	Good	--	Good	--	Good	--	Fair	0031, 0725	Good	--	Good	--
Rocky Hills-Henneberry - Bannock	Fair	Fair	0015	Fair	0015, 0148, 0124	Good	--	Poor	0148, 0124	Fair	0015, 0148, 0124	Good	--
Point of Rocks-Mayflower	Good	Excel.	--	Good	--	Excel.	--	Fair	0443	Good	--	Excel.	--
Pony-London Hills	Fair	Good	--	Fair	0421	Good	--	Good	--	Fair	0421	Good	--
Norwegian Gulch-Hot Springs	Good	Excel.	--	Good	--	Excel.	--	Good	--	Good	--	Excel.	--
Iron Rod-Cottonwood Creek	Good	Good	--	Good	--	Good	--	Poor	0268, 0324	Good	--	Good	--
Camp Creek-Soap Gulch-Selway Gulch	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
McCartney Mountain-Hogback	Excel.	Excel.	--	Excel.	--	Excel.	--	Good	--	Excel.	--	Excel.	--
Birch-Willow-Trapper Creeks	Poor	Good	0311, 0335	Poor	0329, 0317, 0328, 0326, 0320, 0311	Poor	0320	Poor	0328, 0320	Poor	0329 0317 0328, 0326, 0320, 0311	Good	--
Dyce-Scudder Creek	Fair	Fair	--	Fair	--	Fair	--	Fair	--	Fair	--	Fair	--
Dexter Gulch-Frying Pan-Birch Creek	Fair	Good	--	Fair	0197, 0131	Good	--	Good	--	Fair	0197, 0131	Good	--
Wall Creek-Madison River	Fair	Good	--	Fair	0522	Good	--	Good	--	Fair	0522	Good	--
Greenhorn-Davey-Nicholia-Alder	Fair	Fair	--	Fair	--	Fair	--	Poor	0497, 0499	Fair	--	Fair	--
Johnny Gulch-Virginia City	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Ruby Mountain	Fair	Good	--	Fair	0530, 0479	Good	--	Poor	0479	Fair	0530, 0479	Good	--
Sweetwater Creek-Timber Hill	Poor	Good	--	Fair	0469, 0516	Excel.	--	Fair	0469	Poor	0469, 0516	Excel.	--
Carter Creek-Axes Canyon-Moose Creek	Fair	Fair	0533	Fair	0471, 0533	Good	--	Poor	0533	Fair	0471, 0533	Good	--
Fletcher-Moore-Eightmile Creek	Fair	Good	--	Fair	0428, 0669, 0504	Good	--	Fair	--	Fair	0428, 0669, 0504	Good	--
Goodrich-Granite Creek-Mill Creek	Poor	Good	0481	Poor	0348, 0501, 0531, 0507, 0526	Good	--	Poor	0348, 0531, 0526, 0481	Poor	0348, 0501, 0531, 0507, 0526	Good	--
Charcoal Gulch-Ralston	Good	Fair	--	Fair	--	Fair	--	Fair	--	Fair	--	Fair	--

SOURCE: BLM, 1979.

Figure 3-6: IMPACTS ON MULE DEER HABITAT



SOURCE, BLM, 1979.

fall habitat, 40 percent would be improved for deer, 47 percent would remain essentially unchanged, and 13 percent would have impacts considered slightly to moderately detrimental to summering deer. It is anticipated that there would be a moderate net long-term improvement in deer summer habitat quality from 67 percent satisfactory to 87 percent (figure 3-6).

The principal improvements would occur in the Upper Sheep Creek-Medicine Lodge-Horse Prairie, Tobacco Root Mountains, McCartney Mountain, and Ruby Mountains areas (table 3-24). Improvements in forb compositions are expected in the long term, and moderate short-term improvements in forb availability would accrue through the 11.4 percent reduction in average stocking rate. It is estimated that forage production increases attributable to improved grazing management would be 11 percent by 2010 (see the section on range condition). Unless the increased forage production was allocated totally to livestock, forage increase on summer habitats of 11 to 20 percent could reasonably be expected in the future. Since summer habitat quantity and quality are not limiting to deer herds at present, this would not be expected to affect deer herds appreciably.

Eight of 26 winter-spring habitat areas would remain unsatisfactory (table 3-24). Twenty percent of the total winter-spring habitat would remain unsatisfactory because of conflicts other than livestock grazing. Four areas would remain unsatisfactory because of continuing adverse impacts of high deer numbers on browse species. Deer winter-spring habitat would improve substantially on most of the areas where it is now unsatisfactory. This would be reflected in increased abundance of early growing grasses and forbs, which are critically important to deer during April and May. This improvement is particularly important in the Birch-Willow-Cherry-Trapper Creek, Rocky Hills-Henneberry-Bannack, Wall Creek-Madison River, Greenhorn-Davey-Williams-Alder, and Ruby Mountain areas (table 3-24). On the Upper Sheep-Medicine Lodge-Horse Prairie and Rocky Hills-Henneberry-Bannack areas, grazing systems would not substantially improve spring habitats (table 3-24). On four other major areas, Greenhorn-Davey-Williams-Alder, Dyce-Scudder, Charcoal Gulch-Ralston, and Sage-Basin, livestock management would enhance spring habitat quality, but burgeoning deer populations could deteriorate browse species condition on winter habitats in the near future if there were no changes in deer harvest policies.

Proposed changes in winter grazing of domestic sheep on Hansen Creek allotment (0108) would extend sheep use into crucial deer winter habitats where none occurred before. This would cause winter habitat deterioration on about one-third of the North Tendoy area.

On four allotments, Glendale Common (0311), Timber Creek (0533), Brandon Pasture (0481), and Lelow Basin (0335), vegetation manipulation of 2,100 acres of sagebrush would result in significant reductions in deer winter range carrying capacity on local sites within extensive wintering areas. Minor adverse impacts on deer winter habitats would result from sagebrush treatment of 752 acres on three other allotments, Frying Pan (0131), Bradley (0302), and Dry Boulder (0236). Most treatments on winter range would improve spring habitat quality for deer; however, the loss of browse on winter range would offset expected gains in most cases. The variety of grasses, forbs, and possibly browse species available to deer would increase on most winter ranges under the proposed action.

Current deer losses due to fence entanglement are not known. About 30 to 40 miles of new fence constructed in deer habitat would present additional possibilities for entanglement; however, alteration of the existing 200 miles of barrier fence should more than compensate for this, so that there would be no substantial net change. On domestic sheep allotments, fence alterations in compliance with BLM fencing policy would still result in some fencing that does not facilitate desired passage of fawns.

Adverse impacts that cannot be mitigated under the proposed action include the loss of important winter habitat for mule deer on portions of several allotments, Glendale Common (0311), Timber Creek (0533), Brandon Pasture (0481), and Lelow Basin (0335).

Conflicts between winter use by domestic sheep and by mule deer would occur on the Hansen Creek (0108) and Mayberry (0143) allotments. Recovery of mule deer spring habitat would be less than that desired on portions of two habitat areas (table 3-24), and minor losses of deer on summer habitat and moderate losses on winter habitat through fence entanglement would continue at about the present rate.

During the short term, some minor disturbance would occur as projects were developed and as deer adjusted somewhat to changes in stock use and distribution. The long-term productivity of summer habitats would be moderately enhanced, and that of winter-spring habitats would be greatly enhanced.

Under Alternative B, Limited Action, mule deer summer habitat in satisfactory condition would remain at about 67 to 70 percent. The only appreciable change would be improvements in the Ruby Mountains, Upper Sheep-Medicine, Lodge-Horse Prairie, and McCartney Mountain areas, where deer summer habitats are excessively used by livestock.

Winter habitats would remain largely unchanged, with 80 percent unsatisfactory; 58 percent of this would be due to present livestock grazing practices. The spring component of winter-spring habitat could continue to deteriorate, resulting in impaired mule deer production and further loss of soil and long-term habitat productivity. Spring habitat quality would probably continue to be a limiting factor for mule deer on more than half of the habitat areas.

No mitigation is possible within the constraints of the limited action alternative; all impacts would remain unmitigated. The prevailing spring habitat quality deficiences would probably worsen, leading to continued soil losses and possible irrevocable habitat changes. Summer habitat quality could deteriorate slightly as productivity declined, and stock might extend their use to less accessible sites not previously grazed.

Short-term impacts would not be discernible, since the present condition results from 100 years or more of season-long unmanaged livestock use on allotments without AMPs. Long-term productivity would continue to decline, but at a much faster rate on deer winter-spring habitats. Livestock generally use these areas intensively from May 1 to July 1, until national forest lands can be used.

Continued heavy spring livestock use on deer winter-spring habitats could cause a long-term irreversible change in vegetation composition. Continued losses of soil could result in almost complete losses of herbaceous vegetation, with resulting range sites capable of supporting mainly tap-rooted species of plants. This would be detrimental to mule deer.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, mule deer summer-fall habitat would rate excellent on nine and and good on four major habitat areas (see table 3-24). Deductions totaling 3,755 AUMs would be made from the existing situation on areas where high quality deer summer habitat would clearly benefit. In addition, deductions of 4,832 AUMs for the primary benefit of other species would benefit deer summer-fall habitat. Knowles (1975) and Komberec (1976) both alluded to an apparent minimization of cattle grazing impacts on mule deer in the Missouri Breaks if reasonable stocking rates were used. Terrain plays a more significant role in this study area, being steeper than in the Missouri Breaks.

On the basis of the livestock deductions under Alternative C, it appears that positive impacts would occur on 63.1 percent of the allotments having deer summer habitat. Adverse impacts would occur on 0.6 percent, and no substantial change would occur on 36.3 percent. It is estimated that satisfactory (good to excellent) conditions would increase from 67 percent to about 90 percent (see table 3-24).

Most benefits to deer summer-fall habitats would accrue through greater forb composition availability and less extensive distribution of cattle within deer home ranges. The most significant improvements would occur in the Lima Peaks-Pine Top Hill and the Tobacco Root and Ruby Mountains areas, which have very high deer production potential and are now in fair (unsatisfactory) condition (see table 3-24). Nominal summer-fall habitat improvement would occur on the Blacktail Ridge-Upper Sage Creek area. This area has a very high potential for deer production, but it is in good condition now, except for the Gallagher Mountain (0013) and Clark Canyon (0002) allotments, where current stock use is excessive. McCartney Mountain would improve significantly, although this area has only moderate deer production potential.

Mule deer winter-spring habitats would respond about the same as under the proposed grazing management alternative. Four of 26 wintering areas would remain unsatisfactory because of continued adverse impacts of high deer densities on browse species. The consumption of grasses and forbs under spring stocking is not as significant as is the continuing downward trend in vigor and eventual loss of these species. Properly designed livestock grazing management or cessation of stock use on these areas would result in improvement. The proposed spraying on 1,200 acres of crucial winter range would cause major adverse impacts.

Grazed areas initiate growth (green up) earlier during the spring than do ungrazed areas, and it seems likely that light or moderate livestock use on deer spring habitats could be beneficial so long as good herbaceous species vigor is maintained. BLM biologists have observed a tendency of both deer and elk to use areas during the spring which were grazed by stock during the previous growing season. Montana Department of Fish, Wildlife, and Parks (MDFWP) biologists also have observed this (Chrest 1979). The proposed chiseling and interseeding would probably improve spring range by allowing more vigorous herbaceous growth and by establishing additional forage species.

The spring component of winter-spring range on the Upper Sheep-Medicine Lodge-Horse Prairie and Rocky Hills-Henneberry-Bannack areas would be improved by implementation of better grazing systems on the Bannack (0015), Rape Creek (0019), and Erb (0132) allotments, where more growing season rest would be planned.

Deductions of livestock AUMs on deer winter-spring habitats were not proposed in this alternative (see Appendix 12). Proper management with light to moderate stocking rates would accomplish the same habitat improvement as deductions would. The 58 percent unsatisfactory condition due to grazing on winter-spring habitats would be largely rectified. Exceptions would be the Sage-Basin Creek, Dyce-Scudder Creek, and Charcoal Gulch-Ralston areas. On these areas the spring component would improve; however, high-density deer populations could possibly degrade browse condition, so that a net unsatisfactory condition of 20 percent would result.

Browse condition is beginning to decline on the Charcoal Gulch-Ralston area (Frisina 1979). Of the allotments with deer winter-spring habitat, positive impacts would occur on 47 percent, adverse impacts would occur on 5 percent, and there would be no substantial change on 48 percent. In certain instances, watershed spray proposals on winter range would be mitigated in some areas where chemical brush control would be permitted on specific sites in which field evaluations showed that deer use was absent.

Losses of mule deer to fence entanglement would be minor, since fences on all winter ranges would be three-strand with bottom wire heights of 18 inches. Entanglement mortality of deer with fences would continue at a minor rate despite mitigating measures. About 10 percent of summer-fall habitat would receive unavoidable intensive use by stock, even with reduced stocking levels. This would include riparian and other mesic sites. The net impact on mule deer would be slight.

Small fenced allotments would be consolidated into management pastures to reduce the amount of fencing on winter-spring habitats. This would be particularly applicable to the following areas: Birch-Willow-Trapper, Carter Creek-Axes Canyon-Moose Creek, Goodrich-Granite-Mill Creek, Maurer-Ashbough-Spring Gulch-Red Butte, and Clark Canyon-Gallagher Creek-Smallhorn.

Under Alternative D, Accelerated Livestock Forage Development, deer summer-fall habitats would decline in quality, with 30 to 40 percent in satisfactory condition on 8 of 13 major areas (see table 3-24). Seven areas would be fair and two would be poor. Within areas rated fair, some suitable habitat would receive light stock use because of topography. The Ruby Mountains area would remain about the same (fair), since temporary losses of shrubs and forbs resulting from treatments would be offset by improved stock management.

Primary adverse impacts would result from increased stock use of 35,730 AUMs, plus prescribed burning on 24,462 acres and spraying of 35,020 acres of sagebrush. Spraying would result in a short-term 40 to 60 percent loss of forbs (Payne, n. d.), which are the primary summer-fall foods of deer; in addition, there would be highly variable and unpredictable long-term impacts on forbs. Burning would not reduce forb composition; however, those mountain sage sites proposed for burning are generally very productive of forbs at present (see table 18A, Appendix 18), and forbs would become much more available for stock use. Stevens (MDF&G 1965a) and Gordon (MDF&G 1968b) found that cattle diets on Crow Creek, Montana, averaged 24 to 38 percent forbs. Cattle preferred dandelion, fleabane, milkvetch, and false dandelion. These same species are preferred by deer (table 18A, Appendix 18). With the increased stocking rates, greater availability of forbs on mountain sage sites, and reduced forb production, the competition for forbs would become significant on productive sites.

Losses of sagebrush cover for deer would be critical in open sagebrush habitats in all areas, but less significant in timbered areas. Cover for fawns would be greatly reduced, possibly contributing to increased predation and greater vulnerability to chilling during spring storms. Of allotments containing summer-fall habitats, positive impacts would occur on 0.6 percent, adverse impacts on 77.1 percent, and no substantial change on 22.3 percent.

Deer winter-spring habitats would decline in quality on 12 major areas, remain fair or poor on 18 areas, and improve on 6 areas (table 3-24). Overall, deer winter habitat would remain 20 to 30 percent satisfactory. Improvements would occur on areas where little or no artificial treatment was used but improved grazing management was implemented. Improvements on the spring component of winter-spring habitat would accrue through improved grazing management; however, extensive losses of key browse species on some winter ranges would offset this improvement.

On winter habitats previously described, the browse composition is barely adequate for existing populations, and any losses through vegetation manipulation would precipitate significant short-term mortality of deer. Deer numbers are increasing in most areas. Losses of browse species would result in accelerated significant short-term degradation of browse vigor and productivity (through increased deer use) and reduced long-term carrying capacity for deer. The net effect would be significant deer mortality on the following areas: Maurer-Ashbough Gulch, Rocky Hills-Henneberry-Bannack, Iron Rod-Cottonwood, Birch-Willow-Trapper, Carter Creek-Axes Canyon-Moose Creek, and Goodrich-Granite Creek-Mill Creek.

Of allotments including winter-spring habitat, positive impacts would occur on 2 percent, adverse impacts would occur on 82 percent, and no substantial change would be noted on 16 percent. The major impacts in this alternative could be mitigated only by deleting both the stocking increases in high-quality deer summer habitat and the sagebrush treatments on important winter habitats. Grazing system conflicts could be mitigated as in Alternative C (see Appendix 12).

Most adverse impacts from range development implementation would be short-term. Within 15 to 30 years much browse recovery would have occurred, and most winter ranges would approximate current carrying capacities for deer. On summer ranges, some long-term recovery in forb compositions on sprayed areas would occur, but most habitats would continue to be heavily grazed.

Under Alternative E, No Action, responses of deer habitat would be the same as in the limited action alternative, with the exception of partial summer range recovery in the Ruby Mountains, Upper Sheep-Medicine Lodge-Horse Prairie, and McCartney Mountains areas. These areas would remain in poor and fair condition. Winter-spring habitats would remain in the present condition (see figure 3-6).

Under Alternative F, Elimination of Livestock Grazing from Public Lands, mule deer summer-fall habitat condition would be excellent on ten areas and good on three (table 3-24). Of the allotments containing summer-fall habitats, positive impacts would occur on 70.2 percent, with no substantial change occurring on 29.8 percent. No adverse impacts would occur.

It is estimated that satisfactory (good to excellent) conditions on summer-fall habitats would increase from 67 percent overall to about 95 percent. The remaining five percent would consist of tracts too small to warrant fencing, and those where fencing mortality would offset gains made in forage availability. The most substantial gains would be in the Lima Peaks-Pine Top Hill, Tobacco Root Mountains, and Ruby Mountains areas. Improvements would occur on portions of all summer-fall habitats where there is heavy use by livestock, especially in riparian habitats and other moist, forb-producing areas.

Deer winter-spring habitats would respond about the same as under the proposed grazing management alternative, with 85 percent in satisfactory condition. The continuing downward trend in vigor of herbaceous species on spring habitats would cease, and recovery would occur. It is possible that some minor delay in greenup would occur on densely vegetated areas; this would be detrimental to deer during early spring. Recovery in species diversity and vigor might compensate for delayed greenup on grazed areas by increasing the abundance of early-growing species.

Twenty winter-spring habitats would be in good condition (see table 3-24). Four areas that include sage-grass and mahogany types would be in excellent condition because of a greater vegetative diversity. Four areas could be expected to remain in fair condition irrespective of livestock management, because of the presence of high density, growing deer populations and the detrimental impacts of deer on browse species. Browse species are currently showing signs of excessive use in these areas. On allotments with winter-spring habitat, positive impacts would occur on 59.7 percent, substantial change would occur on 40.3 percent, and no allotments would be negatively affected.

Losses of mule deer to fence entanglement would continue at about the current rate. Some new fences would be needed to fence BLM boundaries; however, interior management fences needed for livestock control could be eliminated.

Conclusions—Under the proposed action (Alternative A), reduced stock use would enhance forage production and forb composition, upgrading deer summer habitat from 67 percent satisfactory to 80 to 90 percent satisfactory (figure 3-6). Winter habitat in satisfactory condition would increase from 21 percent to 75 to 85 percent, primarily through improved forage plant vigor and availability on spring habitats (see figure 3-6). There would be residual conflicts on winter habitat in areas of extensive sagebrush treatments. Assuming other factors would remain constant, improvement in winter-spring habitat would be substantial and could contribute to significant improvements in fawn production and survival, resulting in moderate deer population increases.

Alternatives B and E would have little effect on the quality of either summer or winter habitat (figure 3-6). The condition of the spring component of winter-spring habitats would continue to be a limiting factor for deer on about half of the areas. No changes in mule deer populations would result from these actions.

Under Alternative C, the reduction in stocking rates for livestock would improve summer habitats from 67 percent to 85 to 95 percent satisfactory (figure 3-6). Winter-spring habitat would improve from 21 percent satisfactory to 75 to 80 percent because of improved herbaceous vigor on spring habitats. High deer densities could maintain unsatisfactory habitat conditions on as much as 20 percent of winter habitat. Assuming other factors would remain constant, improvement in winter-spring habitat would be substantial and could contribute to significant improvements in fawn production and survival, resulting in moderate deer population increases.

Under Alternative D, the quality of summer-fall habitat would decline drastically, from 67 percent satisfactory to 30 to 40 percent (figure 3-6). Sagebrush spraying would reduce forb compositions temporarily, and increased stocking levels would increase competition for forage. The loss of browse compositions on winter habitats would cause significant mortality in deer on six areas. The 25 percent overall satisfactory condition on winter habitats would remain about the same, since browse losses on some areas would be offset by greatly improved spring habitat on areas with no vegetation manipulation and improved grazing management. Assuming other factors would remain constant, the impairment of summer habitat quality would result in reduced natality and moderate deer population declines.

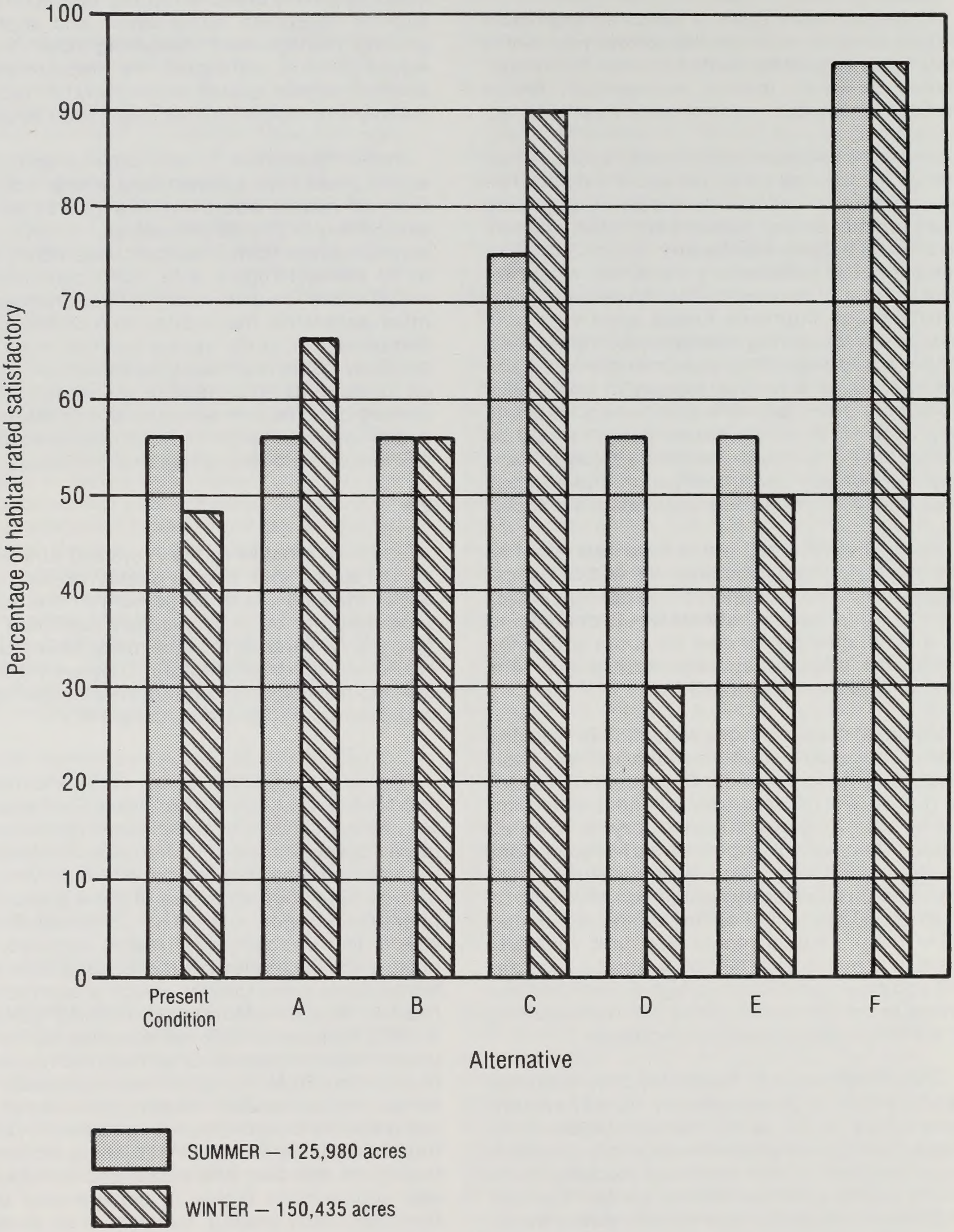
Under Alternative F, near optimal conditions would prevail on summer and winter habitats. Summer habitat would improve from 67 percent satisfactory to 90 to 99 percent, and winter habitat would improve from 21 percent satisfactory to 80 to 90 percent (figure 3-6). Forb compositions would improve substantially in riparian areas and other accessible mesic sites, and on the spring component of winter-spring habitats. High deer densities could maintain unsatisfactory habitats on as much as 20 percent of winter habitat. Assuming other factors would remain constant, the overall improvements in habitat quality would result in moderate deer population increases.

Elk

Under Alternative A, the Proposed Action, the overall elk summer habitat quality would remain about the same, with 56 percent of the habitat considered to be in satisfactory condition (see figure 3-7). Three of the nine major habitat areas would remain unsatisfactory. They are the Ruby Mountains, Medicine Lodge-Upper Horse Prairie, and Blacktail Ridge areas (table 3-25).

Vegetative response on the Ruby Mountains and Medicine Lodge-Upper Horse Prairie areas would be positive, with an increase in grasses and forbs; however, a social intolerance of cattle during each summer-fall period would prevent elk from making substantial use of these areas. This phenomenon now occurs on Blacktail Ridge, where, in the absence of rested pastures, elk make annual summer-fall movements from preferred mesic areas to drier, marginal summer-fall habitats. Studies in Montana (Lonner 1978, Mackie 1970; Komberec 1976, and Knowles 1975) document major influences of cattle presence on elk distribution. BLM biologists have repeatedly observed avoidance of elk in heavy cattle and sheep use areas. In Oregon, Skovlin and Harris (1974) found that as levels of cattle stocking increased, use by elk and deer decreased, and that elk use was substantially higher in experimental units free from cattle grazing. Substantial elk summer use can be accommodated only by providing rather extensive mesic habitats essentially free of

Figure 3-7: IMPACTS ON ELK HABITAT



SOURCE: BLM, 1979.

TABLE 3-25

IMPACTS IN ELK HABITAT AREAS

		A: The Proposed Action		B: Limited Action		C: Better Watershed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
Season/ Habitat Area	Current Condition	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Resid. Adverse Impacts
Spring (calving)													
Upper Granite Creek	Fair	Fair	0456, 0475	Fair	0456, 0475	Excel.	--	Poor	0456, 0475, 0526	Fair	0456, 0475	Excel.	--
Standard-Wall Creek	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Excel.	--
Divide-Black Canyon-Bear Creek	Good	Good	0020	Good	0020	Excel.	--	Good	0020	Good	0020	Excel.	--
Shesser Creek	Good	Good	--	Good	--	Excel.	--	Good	--	Good	--	Excel.	--
Blacktail Ridge-Sheep	Good	Good	--	Good	--	Excel.	--	Good	--	Good	--	Excel.	--
North Centennial Valley	Fair	Fair	0708, 0734	Fair	0708, 0734	Good	--	Fair	0708, 0734	Fair	0708, 0734	Good	--
Summer-fall													
Baldy Mountain-Horse Hill	Good	Good	0497	Good	0497	Good	--	Good	0497	Good	0497	Excel.	--
Ruby Mountains	Poor	Poor	0479, 0530	Poor	0479, 0530	Good	--	Poor	0479, 0530	Poor	0479, 0530	Excel.	--
Humbug Spires-Camp Creek	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Tendoy Mountains	Good	Good	0748, 0749, 0149, 0150	Good	0748, 0749	Good	--	Good	0748 0749, 0149, 0150	Good	0748 0749	Good	--
Medicine Lodge-Upper Horse Prairie	Fair	Fair	0748, 0749	Fair	0748, 0749, 0119	Good	--	Fair	0748, 0749, 0119 0132	Fair	0748, 0749, 0119	Good	--
Blacktail Ridge	Fair	Fair	0002, 0003, 0013, 0147, 0117, 0136	Fair	0002, 0003, 0013, 0117, 0136	Good	0136	Fair	0002, 0003, 0013, 0147, 0117, 0136	Fair	0002, 0003, 0013, 0117, 0136	Good	--
Chris Cabin-North Fork Blacktail Creek	Good	Good	--	Good	--	Good	--	Good	0012	Good	--	Good	--
East Fork Blacktail Creek	Good	Good	--	Good	--	Good	--	Good	0167	Good	--	Good	--
Centennial Mountains	Good	Good	0152, 0154, 0040	Good	0152, 0154, 0730, 0040	Excel.	--	Good	0152 0154, 0730, 0040	Good	0730, 0152, 0154, 0040	Excel.	--
Winter													
Greenhorn-Barton-Davey	Fair	Fair	0499	Fair	0499, 0490	Excel.	--	Poor	0499, 0490	Fair	0499, 0490	Excel.	--
Wigwam Creek-Haypress	Fair	Excel.	--	Fair	Wigwam	Excel.	--	Excel.	--	Fair	Wigwam	Excel.	--
Haypress-Morgan-Cherry Creek to USFS Boundary	Fair	Good	--	Good	--	Good	--	Poor	0457	Fair	0459, 0558	Good	--
Wall Creek Game Range	Excel.	Excel.	--	Excel.	--	Excel.	--	Excel.	--	Excel.	--	Excel.	--
Indian Papoose Creek	Good	Good	--	Good	--	Good	--	Good	--	Good	0460	Excel.	--

TABLE 3-25, page 2

Season/ Habitat Area	Current Con- dition	A: The Proposed Action		B: Limited Action		C: Better Water- shed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
		Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Resid. Adverse Impacts
Point of Rocks-Bone Basin-Shaw Basin	Fair	Good	--	Fair	0433	Excel.	--	Poor	0443, 0433	Fair	0433	Excel.	
North Willow-South Boulder-London Hills	Fair	Fair	0421	Fair	0421	Excel.	--	Fair	0421	Fair	0385, 0421	Excel.	--
Granite-Ramshorn-Miller	Fair	Good	0475	Fair	0531, 0507, 0475	Excel.	--	Poor	0531, 0507, 0475, 0526	Fair	0531 0507, 0475	Excel.	--
Goodrich-Georgia Gulch-Dry Boulder	Fair	Good	0501	Fair	0501, 0348	Excel.	--	Poor	0501, 0348	Fair	0501, 0348	Excel.	--
North Meadow-North Willow Creek	Poor	Fair	0404	Fair	0404, 0407, 0447	Excel.	--	Poor	0404, 0407, 0447	Poor	0404, 0407 0447	Excel.	--
Fletcher-Moore	Poor	Good	--	Fair	0489, 0428, 0521	Good	--	Poor	0489, 0521	Poor	0489, 0428	Excel.	--
Steel's Pass-Camp-Soap Gulch-Selway Gulch	Good	Good	--	Good	--	Excel.	--	Fair	0308, 0324	Good	--	Excel.	--
Fleecer-Charcoal-Dickie Hills	Good	Good	--	Good	--	Excel.	--	Good	--	Good	--	Excel.	--
Nez Perce-Shepherd Mountain	Fair	Fair	0301	Fair	0301	Good	--	Fair	0311	Fair	0301	Excel.	--
Tendoy Mountains	Excel.	Excel.	--	Excel.	--	Excel.	--	Good	0748, 0749, 0699	Excel.	--	Excel.	--
Lima Peaks	Fair	Good	--	Good	--	Excel.	--	Poor	0270	Fair	0029, 0270	Excel.	--
Roberts Gulch-Painter Creek-Taylor Ridge-Madigan	Fair	Good	--	Fair	0725, 0726, 0148, 0150	Excel.	--	Poor	0725, 0726, 0148, 0150 0030	Fair	0725, 0726, 0148, 0150	Excel.	--
Dyce Creek-Badger Pass-Dutchman Mountain	Good	Good	0037	Good	--	Excel.	--	Fair	0037, 0005, 0006, 0182	Good	--	Excel.	--
Blacktail Ridge	Excel.	Excel.	--	Excel.	--	Excel.	--	Good	0002, 0003	Excel.	--	Excel.	--
Chris Cabin-Basin Creek	Good	Good	--	Good	--	Excel.	--	Fair	0012, 0143	Good	--	Excel.	--
East Fork Blacktail-Robb-Ledford Creek	Good	Good	0631	Good	0631	Excel.	--	Good	0631	Good	0631	Excel.	
Wolverine-Mohican-Piute Creek	Good	Good	--	Good	--	Good	--	Poor	0152, 0154	Good	--	Excel.	--
North Centennial Valley	Good	Good	--	Good	--	Excel.	--	Poor	0152, 0154, 0708, 0734, 0172	Good	--	Excel.	--
South Centennial Valley	Fair	Fair	0040	Fair	0040	Excel.	--	Poor	0040	Fair	0040	Excel.	--
Warm Springs	Fair	Fair	Warm Springs	Fair	Warm Springs	Excel.	--	Fair	Warm Springs	Fair	Warm Springs	Excel.	--

TABLE 3-25, page 3

Season/ Habitat Area	Current Con- dition	A: The Proposed Action		B: Limited Action		C: Better Water- shed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
		Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Resid. Adverse Impacts
Yearlong													
McCartney Mountain	Fair	Fair	0323	Fair	0323, 0314	Good	--	Poor	0323, 0314, 0327	Fair	0314	Good	--

SOURCE: BLM, 1979.

livestock use each year, or by stocking summer habitats at very low levels.

Proposed grazing management in the Ruby Range provides no substantial annual rested areas in mesic habitats; thus, the elk population would be expected to remain about 15 percent of potential for the area. On Blacktail Ridge, no improvement would occur, since better conditions on mesic habitats in the Clark Canyon allotment (0003) would be offset by proposed increased stock use in the Matador Blacktail allotment (0147). Lack of rest pastures in the Medicine Lodge-Upper Horse Prairie area would result in no substantial improvement for elk.

On the basis of elk summer-fall habitat alone, elk habitats on 28.4 percent of the allotments would improve under Alternative A, 32.4 percent would be harmed, and no substantial change or detrimental impact would occur on 39.2 percent. No substantial change would occur overall, with about 50 to 60 percent of summer habitat remaining unsatisfactory (see figure 3-7).

Elk calving habitats would remain essentially unchanged, with two of six areas remaining unsatisfactory (table 3-25). They include Upper Granite Creek and the North Centennial Valley, where major conflicts would consist principally of proposed livestock turnouts between May 1 and June 15 on the Ballard (0456), Mill Gulch (0475), Fish Creek (0708), and Snowcrest Ranch (0734) allotments. Elk calving occurs between May 17 and June 4 (Reichelt 1973). The impact of stock use would be principally social intolerance (as discussed earlier), and elk could be forced to calve in areas less conducive to calf survival. Johnson (1951) found newborn calves were incapable of movement until the third or fourth day, and little movement probably occurs for several weeks. The introduction of livestock during this period could reduce attendance of calves by the parent cow elk or otherwise interfere with normal parental behavior. Of 46 allotments with elk calving use, 65.2 percent would have turnout dates compatible with elk, and 34.8 percent would be incompatable.

Elk winter habitat quality would improve to a moderate degree because of improved stock management and reduced stocking levels. Of 14 areas considered unsatisfactory at present, 8 would improve to a satisfactory (good or excellent) condition (see table 3-25).

Greenhorn-Barton-Davey is the only major elk winter area that would remain unsatisfactory, because of the proposed management on allotment 0499. This allotment is grazed at capacity two out of three years, during the peak flowering of key forage grasses. The allotment is steep and mountainous, and better suited to big game use than stock use. Without stock use, wintering elk numbers could be doubled on this allotment.

On other major winter habitat areas, overall conditions would be satisfactory; however, several individual allotments within these areas would not adequately provide for elk because of livestock stocking levels or lack of annual rest pastures. They are the Wisconsin Creek (0501), Strawberry Ridge (0421), Preacher Creek (0404), Copp-Jackson (0301), Baldy Mountain (0037), Robb Creek (0631), and Price Creek (0040) allotments; see table 3-25.

Of 123 allotments having elk winter use, 74.8 percent would have management that is beneficial or compatible with elk, while 25.2 percent would have management that would conflict with elk needs. It is estimated that about 67 percent of elk winter habitat would have satisfactory habitat conditions, as opposed to 47 percent at present (figure 3-7). Approximately 50 to 60 miles of new fencing would be constructed in elk habitats, which represents a minor increase. Losses to entanglement would be minor, though slightly greater than the present rate.

The vigor, diversity of species, and production key grass species would improve on most allotments. Reduced forage availability for elk during winter would be the principal adverse impact associated with the proposed action.

The elk population in the Ruby Mountains would remain at about 15 percent of estimated potential because of a lack of mesic habitats free of stock use. The Blacktail Ridge elk herd would remain at about 50 percent of potential for the same reason.

Certain minor elk winter ranges, and one important one, Greenhorn-Barton-Davey, would remain largely unsatisfactory. Some minor increased fence entanglement mortality would occur. The short-term impacts of the proposed action would not jeopardize or limit long-term management options for elk.

Under Alternative B, Limited Action, elk summer habitat quality would remain about the same as at present (see figure 3-7). Three of nine major areas would remain unsatisfactory (table 3-25). Impacts would be similar to those described for the proposed action; however, on an allotment basis this alternative is slightly less beneficial to elk, with benefits on only 6.8 percent of allotments.

Elk calving habitats would be unchanged, with two of six areas unsatisfactory (table 3-25). Impacts from this alternative would be slightly more detrimental than those from the proposed action; of 46 allotments with elk calving use, 50 percent would have early turnout dates incompatible with elk.

Elk winter and yearlong habitats would improve on 4 of 26 areas: Cherry Creek, North Meadow-North Willow, Fletcher-Moore, and Lima Peaks (table 3-25). Reductions in stocking rates would benefit elk by improving forage quantity. Thirteen of 26 winter areas would remain unsatisfactory for elk, including two of the improved areas, Fletcher-Moore and North Meadow-North Willow. Elk would benefit on 21.1 percent of the allotments, no change or significant impact would occur on 34.2 percent, and elk winter habitat conditions would remain unsatisfactory on 44.7 percent. Total winter habitat would remain at 55 percent satisfactory (figure 3-7). Impacts are described in detail in the discussion of the proposed action.

Summer habitat conflicts could be mitigated only by reducing stocking rates in important elk summer habitats. This action would be most beneficial to elk in the Price Creek (0040), Garden Creek (0479), Clark Canyon (0002-0003), McHessor Creek (0530), Gallagher Mountain (0013), and Knox (0136) allotments.

Calving habitat conflicts could be mitigated only by deferring stock turnout dates to July 1. This would be most beneficial to elk in the Ballard (0456), Mill Gulch (0475), North Black Canyon (0020), Fish Creek (0708), and Snowcrest Ranch (0734) allotments.

Winter habitat conflicts could be mitigated through reductions in proposed stocking rates. This would be most beneficial in the Barton Gulch (0490), Idaho Jack (0499), Wisconsin Creek (0501), Georgia Gulch (0348), Copper Mountain (0531), California Creek (0507), Mill Gulch (0475), Preacher Creek (0404), Revenue Common (0407), Wallace Creek (0447), Stone Creek (0498), Fletcher-Moore (0428), Price Creek (0040), and Robb Creek (0631) allotments.

Elk summer habitat quality would remain about the same, with 43 percent unsatisfactory; while winter habitats would remain unsatisfactory on 13 of the 26 major areas, or about 45 percent of the total winter habitat in the study area (figure 3-7). Conflicts with elk calving also would not be resolved, with turnout dates on about 50 percent of the allotments conflicting with elk.

The short-term impacts of Alternative B would not jeopardize or limit long-term management options for elk.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, elk summer-fall habitat quality would greatly improve on the three unsatisfactory areas, the Ruby Mountains, Medicine Lodge-Upper Horse Prairie, and Blacktail Ridge areas (see table 3-25). This would be accomplished through stocking deductions of 1,735 AUMs on the Garden Creek (0479), McHessor Creek (0530), Clark Canyon (0002-0003), Gallagher Mountain (0013), Matador Blacktail (0147), and Conover (0117) allotments; total exclusion of stock on 14,736 acres in the McHessor Creek (0530), Gallagher Mountain (0013), and Matador Blacktail (0147) allotments; and changes of grazing systems on the Garden Creek (0479), Clark Canyon (0002), and Gallagher Mountain (0113) allotments. Elk summer-fall habitats would rate good on eight areas and excellent on one area (table 3-25). Of allotments with summer-fall habitat, positive impacts would occur on 62.2 percent, negative impacts on 1.4 percent, and no change or detrimental impact on 36.4 percent. It is estimated that satisfactory (good and excellent) habitat conditions would increase from 56 percent to about 75 percent on total habitat (figure 3-7).

Most benefits would accrue through annual availability of mesic habitats free of livestock. Disruption would be minimized by the provision of rest pastures and stock exclusions in key areas. Some unavoidable conflicts with grazing would occur; however, elk needs would be met. Elk numbers would approximately double on Blacktail Ridge and would increase six to seven times in the Ruby Mountains. Enhanced summer use in other areas would occur, but impacts would be less significant in terms of population response.

Elk calving habitat quality would improve on two unsatisfactory areas, Upper Granite Creek and the North Centennial Valley. This would be accomplished by deferment of stock turnout to July 1 on the Ballard (0456), Mill Gulch (0475), Fish Creek (0708), and Snowcrest Ranch (0734) allotments. Elk calving habitats would rate good on one area and excellent on five areas (table 3-25).

Elk winter habitat quality would greatly improve on 13 unsatisfactory areas (table 3-25). This would be accomplished through stocking reductions of 5,210 AUMs on 45 allotments and the exclusion of stock from 19,620 acres. Additionally, reductions of 4,824 AUMs on 15 other allotments, made primarily for the benefit of other species, would also benefit wintering elk. Stocking reductions would include necessary changes in proposed grazing systems such as rest pastures, changed treatment dates, simple reduced stocking levels, and total exclusion of stock. Of 123 allotments with elk winter use, 70.7 percent would have beneficial management, and 29.3 percent would have management consistent with elk needs.

The availability of key grass forage species would increase significantly, allowing elk numbers to increase significantly on many wintering areas. The greatest response would occur on the Greenhorn-Barton-Davey, Fleecer-Charcoal-Dickey, Granite-Ramshorn-Mill Creek, and Dyce Creek-Badger Pass-Dutchman Mountains areas. Wintering elk numbers could double on these major habitat areas, and substantial increases in elk numbers would occur on other areas. It is estimated that about 90 percent of elk winter habitat would be in satisfactory condition, as opposed to 47 percent at present (figure 3-7).

Under this alternative, mitigating measures desirable for elk were considered in the impact analysis. About 25 percent of elk summer-fall habitat would receive livestock use during periods detrimental to elk. This would not be a major impact because of the abundance of summer habitat in most areas.

About 10 percent of elk winter habitat would receive enough stock use to be detrimental to elk. This would occur on marginal habitat areas and small isolated public land tracts that do not warrant the expense of fencing. Fencing mortality would occur at about the present minor rate. The short-term impacts of this action would not jeopardize or limit long-term management options for elk.

Under Alternative D, Accelerated Livestock Forage Development, elk summer habitat quality would remain about the same as at present, and as described under the proposed action, with 56 percent satisfactory (table 3-25 and figure 3-7). Range developments would produce more forage of use to elk; however, under this option all additional forage would be allocated to livestock after consideration of proper use factors. Grazing systems described for the proposed action would not be changed in this alternative; thus, elk social intolerance on summer habitats would remain the principal problem.

Elk calving habitat quality would decline on the Upper Granite Creek area from fair to poor because of losses of sagebrush cover on 1,288 acres. The other areas would remain unchanged, with four in good condition and one in fair. Early turnout dates would conflict with calving on 34.8 percent of the allotments that have calving habitat.

Elk winter habitat quality would decline on 16 areas, compared to the present condition (table 3-25). Winter habitat quality would decline from 47 percent satisfactory to about 25 to 35 percent satisfactory, and the decline in habitat quality would precipitate significant declines in elk production on most winter ranges (figure 3-7). The principal adverse impact would be reduced winter forage supplies due to the approximately 45 percent increase in allocations to livestock on elk winter habitats. A portion of the increased stock allocation would be provided through increased grass production on areas where sagebrush would be treated; thus, the 45 percent increase in allocation would not necessarily represent 45 percent less forage for elk, but probably 23 to 30 percent less.

The only possible mitigating measures would be changes in stocking levels, proposed grazing systems, and turnout dates. However, these measures would not be consistent with the accelerated livestock forage development alternative; therefore, all adverse impacts described would be unmitigated. The short-term impacts of the proposed action would not jeopardize or limit long-term management options for elk.

Under Alternative E, No Action, elk habitat would remain in its present condition, so that there would be little difference between this alternative and the limited action alternative. Elk winter habitat would be slightly better under the limited action alternative than in the no action alternative because stocking levels would be reduced under Alternative B (see figure 3-7).

Under Alternative F, Elimination of Livestock Grazing from Public Lands, elk summer-fall habitat condition would be excellent in three and good on six areas (table 3-25). Some areas do not have the potential to be excellent quality habitats because of their xeric nature and lack of vegetative diversity. Of allotments containing elk summer-fall habitat, positive impacts would occur on 66.2 percent, adverse impacts on 1.3 percent, and no substantial change would occur on 32.4 percent. It is estimated that satisfactory (good and excellent) habitat conditions would increase from 56 percent overall to about 95 percent (figure 3-7). The remaining five percent would consist of tracts too small to warrant fencing and those where fencing mortality might offset potential gains.

The most substantial improvements would be in the Ruby Mountains and on Blacktail Ridge. Elk would be able to select the most desirable habitat areas, particularly mesic (wet) habitats, without influence from livestock. Total elk summer-fall distribution would probably increase 30 to 40 percent, especially in the Ruby Mountains, Greenhorn-Barton-Davey, Baldy Mountain Hill, Tendoy Mountains, Medicine Lodge-Upper Horse Prairie, Upper Granite Creek, and East Fork Blacktail areas.

Elk calving habitats would be free of grazing conflicts on public lands; however, with an increase in elk numbers, conflicts on private land could increase. Enhanced residual herbaceous cover might enhance calf concealment and survival. Elk could select the most favorable sites for calving without influence from the presence of livestock. Five areas would be excellent and one good (table 3-25).

Elk winter habitat quality would improve on 24 of 26 areas, largely because of increased forage quantities (table 3-25). Total winter habitat would be 95 percent satisfactory, as opposed to 47 percent at present (figure 3-7). The greatest response would occur on the following areas: Greenhorn-Barton-Davey, Point of Rocks-Bone Basin-Shaw Basin, Fleecer-Charcoal-Dickey, Granite-Ramshorn-Mill Creek, and Dyce Creek-Badger Pass-Dutchman Mountain. Winter elk numbers could double on these areas, from the present 1,180 to 1,280 to a possible 2,360 to 2,560 head. Major elk increases could also be expected on these areas: Nez Perce-Shepherd Mountain, Goodrich-Georgia Gulch-Dry Boulder, Fletcher-Moore, Roberts Gulch-Painter Creek-Taylor Ridge-Madison Gulch, Chris Cabin-Basin Creek, and South Centennial Valley.

This alternative would permit major build-ups in existing elk herds. This practice has been demonstrated with great success by the MDFWP on the Blacktail, Fleecer Mountain, and Madison-Wall Creek game ranges. Elk herds have roughly doubled on these areas on a short-term basis simply because livestock were excluded from areas highly suited to elk winter use. This is not to suggest that livestock and elk are mutually exclusive on elk winter ranges.

In Oregon, Anderson and Scherzinger (1975) felt that carefully prescribed livestock grazing, along with road and winter vehicle closures and the maintenance of an "elk only" use area, enhanced elk winter habitat quality. Stock management was rigidly regulated to produce grass regrowth, which stopped growth at a more nutritious phenological stage. Possible losses of forage quality and palatability could occur in the absence of livestock use; however, experience in the study area has shown that forage quantity rather than quality has generally been most limiting on elk winter habitats.

Allotment 0318 (Jerry Creek) has been managed for regrowth, with alternating treatments of rest and early stock use (June 1 to July 1). Elk winter use during four winters, 1975 through 1978, has been about 20 to 40 percent greater in the pasture receiving early stock use, as demonstrated by pellet group frequency (BLM file 6630). These data suggest that where forage quantity is not limiting on elk winter ranges, periodic early stock utilization may improve the quality of elk winter forage.

Under this alternative, mitigating measures would not be required unless forage quality on winter habitats was demonstrated to be a limiting factor. If this occurred, some periodic, carefully regulated stock use might be applied.

Minor quality declines on elk winter habitats could occur in the long term, although the actual impact of this upon elk welfare is not known. The short-term impacts of this action would not jeopardize or limit long-term management options for elk.

Conclusions—Alternatives A, B, D, and E would all have similar impacts on elk summer habitats, which would remain essentially in the same condition as at present, with 67 percent satisfactory (figure 3-7). The major conflict on summer range stems from disturbance competition and lack of undisturbed mesic areas.

Two major summer habitat areas with significant potential for improved habitat quality and increased elk productivity (Ruby Mountains, Blacktail Ridge) would remain in unsatisfactory condition as a result of Alternatives A, B, D, and E.

Alternative A would allow a moderate increase in satisfactory elk winter habitat from 47 percent to 60 to 70 percent (figure 3-7); however, one major area (Barton Gulch-Idaho Creek) would remain unsatisfactory (table 3-25). This area has the potential to support about twice the current elk numbers if livestock were excluded. Assuming other factors remained constant, the winter habitat improvements would result in moderate increases in elk numbers.

Winter habitats would improve slightly under Alternatives B and E. Reduced stocking levels in Alternative B would increase satisfactory elk winter habitat from 47 percent to 50 to 60 percent (figure 3-5). Continued improvements in existing AMPs under Alternative E would improve elk winter habitat from 47 percent satisfactory to 45 to 55 percent (figure 3-7). Assuming other factors remained constant, these actions probably would not result in detectable changes in elk populations.

Alternatives C and F would allow significant improvements in elk summer and winter habitats, with near optimal conditions prevailing (figure 3-7). Under Alternative C, some social intolerance would occur, resulting in 70 to 80 percent satisfactory summer habitat, as opposed to 56 percent at present. Under Alternative F, 90 to 99 percent of both winter and summer habitats would be satisfactory. Assuming other factors remained the same, both alternatives would accommodate major increases in elk numbers. Elk summer habitat quantity would increase 30 to 40 percent.

Alternative D is the least desirable for management of elk, especially for winter habitat. Satisfactory elk winter habitat would decline from the present 47 percent to 25 to 35 percent (figure 3-7), resulting in a moderate drop in elk numbers. Summer habitat would be about 55 percent satisfactory, as at present.

Conflicts between elk calving and early stock use (May 1 to June 15) would continue under Alternatives A, B, D, and E, with serious conflicts on two of six habitat areas (table 3-25). No conflicts with elk calving would occur with Alternatives C and F.

Pronghorn Antelope

The proposed action (Alternative A) would affect all identified summer habitats in the study area. Habitat conditions would be expected to improve or be maintained at a satisfactory level on 75 to 85 percent of summer habitat and on 85 percent of winter habitat, compared to 29 and 74 percent, respectively, at present (see figure 3-8). The projected impacts have been grouped according to recognizable antelope habitat areas and are summarized in table 3-26. These areas represent approximately 62 percent of all allotments providing antelope habitat. The remaining allotments (38 percent) support such small numbers of antelope that proposed livestock management would have no significant impact.

Specific summer habitat areas that would improve include the Sheep Creek Basin, Muddy Creek, Medicine Lodge-Barrett-Rape Creek-Bannock Pass, and Sheridan-Point of Rocks areas (table 3-26). Improvements in the herbaceous component of the habitat would be the main factors in long-term and short-term benefits. These improvements would result from an average 11 percent reduction in the total allocation of AUMs to livestock and from the institution of rest and deferment of pastures. On antelope summer range, there would be a slight overall improvement in the study area as a whole. Summer range in satisfactory condition would increase to about 80 percent.

Antelope winter-spring habitat is producing herbaceous vegetation below potential in many instances. This deficiency is a major source of conflict on early spring habitat and is related primarily to historical spring grazing by livestock. Vegetation was rapidly depleted at the onset of heavy livestock grazing in the late 1800s, and in some instances it has never been allowed to recover. In general, these early spring use areas are relatively unproductive because of droughty site conditions and shallow soil profiles.

Proposed grazing systems would help to improve this situation by initiating rest and deferment periods. Such systems would be expected to improve the vital herbaceous plant component on spring range on 36 allotments. This represents approximately 35 percent of the allotments within significant winter-spring use. This proposed action would increase satisfactory habitat to about 85 percent on spring-winter range (figure 3-8).

Proposed sagebrush treatments detrimental to antelope winter range would occur in the Frying Pan, Rocky Hills, Kennison Spring, Belmont, and Cross allotments. Minor antelope yearlong use would be disrupted by spraying and seeding on the Devils Dancehall unit (0327). The 831 acres

TABLE 3-26

IMPACTS IN ANTELOPE HABITAT AREAS

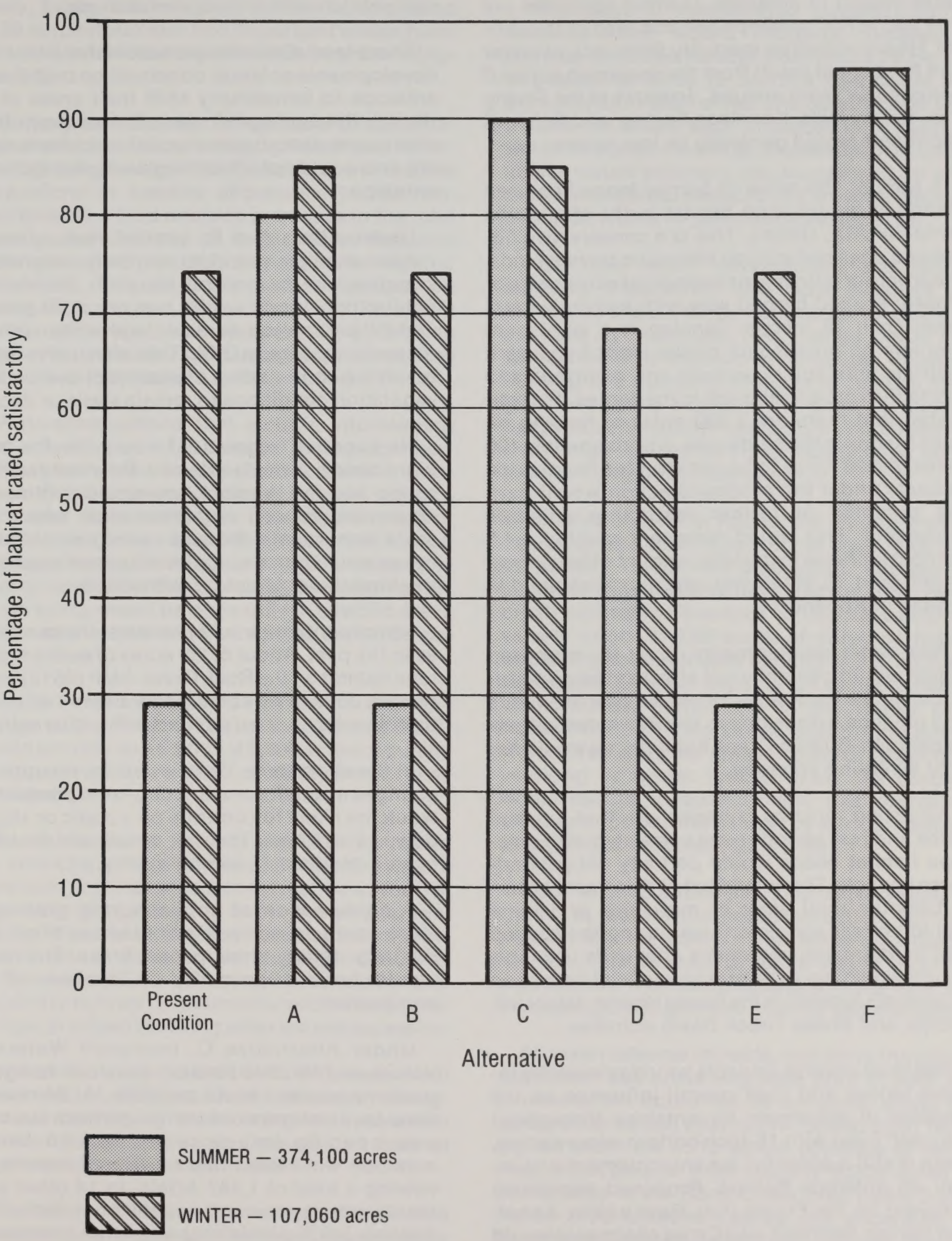
		A: The Proposed Action		B: Limited Action		C: Better Watershed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
Season/ Habitat Area	Current Condition	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts	Condition	AMPs with Major Residual Adverse Impacts
Winter													
Alkali Creek-Cabin Creek	Fair	Fair	--	Fair	--	Fair	--	Poor	0158	Fair	--	Good	--
Bell Canyon-Limekiln Canyon	Fair	Fair	--	Fair	--	Fair	--	Poor	--	Fair	--	Good	--
Spring Creek-Horse Prairie Creek	Poor	Fair	--	Poor	--	Fair	--	Poor	0035	Poor	--	Good	--
Little Sheep Creek	Good	Good	--	Good	--	Good	--	Fair	--	Good	--	Good	--
Taylor Creek	Fair	Fair	--	Fair	--	Fair	--	Poor	0745, 0122	Fair	--	Good	--
Ermont	Fair	Fair	--	Fair	--	Fair	--	Fair	--	Fair	--	Good	--
Timber Butte-McDowell Spring	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Idaho Creek-Greenhorn	Fair	Fair	--	Fair	--	Good	--	Fair	--	Fair	--	Good	--
Melrose	Fair	Fair	--	Fair	--	Good	--	Poor	--	Fair	--	Good	--
Block Mountain-Nez Perce-Rochester Creek-Cottonwood Creek	Fair	Fair	--	Fair	--	Fair	--	Poor	--	Fair	--	Fair	--
Rawhide Creek-Badger Gulch-Sagebrush Creek-Buffalo Creek	Fair	Good	--	Good	--	Good	--	Poor	0122, 0033, 0031	Good	--	Good	--
Pipe Organ-Henneberry	Good	Good	0103	Poor	--	Good	0124	Good	--	Good	--	Good	--
Sage Creek-Basin Creek	Fair	Good	--	Fair	--	Good	--	Good	--	Fair	--	Good	--
Red Butte-Lima-Snowline	Fair	Good	--	Fair	--	Good	--	Good	--	Good	--	Good	--
Maurer Canyon-Clark Canyon	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Lovells Gulch	Fair	Fair	--	Fair	--	Good	--	Fair	--	Fair	--	Good	--
Lima Reservoir	Fair	Good	--	Fair	--	Good	--	Fair	--	Fair	--	Good	--
Summer													
Muddy Creek	Fair	Good	--	Fair	--	Good	--	Poor	--	Fair	--	Good	--
East Tendoy to Garfield	Good	Good	--	Good	--	Good	--	Poor	0198	Good	--	Good	--
Medicine Lodge-Barrett-Rape Creek-Bannock Pass	Poor	Fair	0019, 0017	Poor	--	Fair	--	Poor	0748, 0017, 0019, 0032, 0021	Poor	--	Good	--
Horse Prairie west of highway to Bannock Pass	Fair	Fair	--	Fair	--	Fair	--	Poor	--	Fair	--	Good	--
Sheep Creek Basin	Fair	Good	--	Fair	--	Good	--	Poor	0158, 0741	Fair	--	Good	--

Table 3-26, page 2

Season/ Habitat Area	Current Con- dition	A: The Proposed Action		B: Limited Action		C: Better Water- shed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
		Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts
Pinetop Hill- Truax Creek- Chute Canyon	Good	Good	--	Good	--	Good	--	Fair	--	Good	--	Excel.	--
Dyce Creek- Taylor Creek- Hangman Gulch	Good	Good	--	Good	--	Good	--	Fair	0122, 0745	Good	--	Excel.	--
Rocky Hills	Fair	Fair	0148, 0171, 0150, 0015	Fair	--	Fair	--	Poor	0148, 0124, 0192, 0015	Fair	--	Good	--
Horse Prairie- Buffalo	Good	Poor	0031, 0156	Good	--	Fair	0031	Poor	0031	Good	--	Good	--
Centennial Valley to county road at Lima	Good	Good	0143	Good	--	Good	--	Fair	0172, 0710, 0730	Good	--	Good	--
Summer-yearlong													
Antelope Flat- Ashbough- Armstead	Fair	Fair	--	Fair	--	Fair	--	Fair	--	Fair	--	Good	--
Gallagher- Small Horn- Jake Canyon- Red Canyon- Teddy Creek- Basin Creek	Good	Good	--	Good	--	Excel.	--	Fair	--	Good	--	Excel.	--
Summer													
Rochester- McCartney Creek	Fair	Fair	--	Fair	--	Poor	0324	Fair	--	Fair	--	Good	--
Yearlong													
Hogback- Biltmore	Fair	Fair	--	Fair	--	Good	--	Fair	--	Fair	--	Good	--
Silver Star- Cherry Creek	Good	Good	--	Good	--	Good	--	Poor	0268	Good	--	Good	--
Apex	Fair	Poor	0131	Fair	--	Fair	0335	Poor	--	Fair	--	Good	--
Burns Mountain- Timber Butte	Good	Good	--	Good	--	Good	--	Poor	--	Good	--	Excel.	--
Ermont- Argenta- Frying Pan	Fair	Fair	--	Fair	--	Fair	--	Poor	0182	Fair	--	Good	--
Sheridan- Point of Rocks	Poor	Fair	--	Poor	--	Good	--	Poor	--	Poor	--	Good	--
Yearlong and Summer													
Crazy Springs- Rock Creek- Dry Hollow- Sweetwater- East Fork Blacktail	Good	Good	0182, 0512, 0469	Good	0512	Good	--	Poor	0469, 0512, 0182, 0146	Good	0512	Excel.	--
Yearlong													
Madison Valley	Good	Good	--	Fair	--	Good	--	Good	--	Good	--	Good	--

SOURCE: BLM, 1979.

Figure 3-8: IMPACTS ON ANTELOPE HABITAT



SOURCE: BLM, 1979.

that would be sprayed and seeded on the Cross allotment (0033) would constitute a major adverse impact to antelope. Current estimates are that 500 to 600 antelope use this area in the winter. Heavy antelope mortality from lack of cover and food could result from the proposed action if heavy snow years ensued. Impacts to the Frying Pan, Rocky Hills, Kennison Spring, and Belmont allotments would generally be less severe.

A total of 159 miles of barrier fence has been identified on antelope habitat in the study area (Wildlife URA, Dillon). This is a conservative figure and does not include fences on private lands. Such barrier fences are sheep-tight woven wire or closely-spaced barbed wire with bottom wire(s) lower than 16 inches. Fencing is a significant problem on private and public lands because it restricts antelope movement and contributes to mortality from entrapment in the winter. It is estimated that there are 2,200 miles of fencing on public lands in the study area. Approximately 100 miles of new fence to be constructed in antelope habitats under the proposed action would have the potential of further restricting antelope movement. This would represent roughly a 4.5 percent increase in the total amount of fencing on public land. BLM fencing specifications are discussed in Appendix 5.

New water developments under the proposed action would generally not affect antelope distribution in the study area. However, new reservoirs and pipeline extensions in the Rawhide-Badger-Sagebrush-Buffalo Creek habitat area would benefit wintering antelope.

Adjusting grazing systems so that turnout dates and rest periods were correlated with antelope habitat needs would partially mitigate adverse impacts. This would entail deferment of early turnouts until early or mid-June, and there would be rest and deferment during the second and third grazing treatments after early use. This action would have the most beneficial impact on allotments located in the Horse Prairie, Medicine Lodge, and Sheep Creek Basin vicinities.

Residual adverse impacts would principally involve fences and their overall influence on the freedom of movement for antelope throughout the year. Even with 16-inch bottom wire spacing, there is still a potential for entanglement and injury on antelope habitat. Proposed sagebrush spraying on the Frying Pan, Rocky Hills, Kennison Spring, Belmont, and Cross allotments would also constitute residual adverse impacts, particularly on the Cross allotment (0033). Sheep winter grazing would be a residual adverse impact on the Hildreth allotment (0103) because of potential competition with antelope winter use.

Short-term disturbances associated with range developments or fence construction could cause antelope to temporarily shift their areas of use during the spring-fall period. However, these short-term disturbances would be quite temporary and would not affect long-term distribution of antelope.

Under Alternative B, Limited Action, overall habitat changes would be relatively insignificant compared to the present situation. Satisfactory habitat conditions would remain at 29 percent and 74 percent on summer and winter ranges, respectively (figure 3-8). This alternative would result in a continuation of past practices, causing vegetation conditions to remain static or decline.

Herbaceous vegetation would be the main plant class adversely affected. Relatively uniform spring and fall livestock use would continue to aggravate reduced vegetation vigor where livestock congregate. Browse canopies on winter range would remain unaffected, since vegetation treatments would not be authorized.

Fence conflicts would remain at the same level as in the past. About 5,000 acres of suitable antelope habitat on the Rock Creek AMP (0512) would remain unused by antelope as a result of sheep-tight fencing authorized under this alternative.

In the short term, there would be no apparent changes in antelope use. Long-term productivity would be likely to continue on a static or slightly downward trend. The net result would be an overall decrease in habitat quality.

A continuation of annual spring grazing by stock could cause irretrievable losses of site productivity on key antelope use areas. The losses would be due primarily to erosion or soil compaction.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, livestock forage reductions would benefit antelope. AUM reservations for antelope would originate from two sources: specific forage reductions to benefit antelope were identified on five allotments, involving a total of 1,447 AUMs. In 14 other allotments, antelope would benefit from deductions totaling 3,500 AUMs that would be intended to benefit other species of wildlife. Six summer and eight winter-spring habitat areas would be improved by this action (table 3-26). This would result in 93 and 85 percent of the habitats, respectively, being in satisfactory condition, compared to 29 percent summer and 74 percent winter habitat being in satisfactory condition at present (figure 3-8).

Primary benefits to antelope under this alternative would be attained through rest and deferment grazing treatments in association with AUM deductions in specific allotments. Habitat improvements would relate to increases in the total density and diversity of forb species resulting from decreased grazing pressure under rest and deferment. This would be most important on spring-fall use areas. Reductions in AUMs would further aid vegetation recovery in allotments where rest and deferment treatments alone were not sufficient to restore forb composition.

Watershed actions that include interseeding and chiseling on 1,410 acres of spring-summer-fall habitat would be expected to benefit antelope. Chiseling would stimulate plant production, and increased forb composition would result from interseeding with species that furnish antelope forage. To mitigate any adverse impacts of proposed watershed spraying on winter range, all spraying would be done only in specific areas where conclusive evidence shows that antelope use is absent.

Fence modification to eliminate an antelope barrier in the Rock Creek area (allotment 0512) would provide an additional 5,000 acres of quality antelope habitat in an area currently devoid of all antelope use.

Residual adverse impacts would be sustained on antelope spring-summer-fall habitats where livestock grazing would continue; however, reduced stocking rates and improved grazing systems on these habitats should reduce the impacts to a minimum. Research conducted in Colorado by Schwartz (1977) indicated that antelope have the ability to favorably compete with livestock for forage, provided stocking rates are not excessive.

Watershed recommendations for mechanical treatment of 500 acres of antelope spring-summer-fall habitat would represent substantial residual adverse impacts through the loss of sagebrush food and cover value.

Short-term changes in management would cause long-term gains in the overall productivity of antelope habitat on public land. Primary benefits would be in habitat areas where antelope rely heavily upon forb species (spring-summer-fall).

Alternative D, Accelerated Livestock Forage Development, would increase satisfactory summer antelope habitat from about 29 percent at present to 65 to 75 percent (see figure 3-8), primarily as a result of rest and deferment grazing treatments where such practices have been absent in the past. However, increased forage availability would probably not be realized by antelope in most areas because of the overall increase of 35,730 AUMs in permitted livestock use.

Additional water development and heavier stocking rates would also move livestock into areas that are currently not grazed by stock but are used by antelope. This change would have serious adverse impacts on antelope. Proposed burning and spraying projects to remove sagebrush would be expected to diminish summer range value, although some burns could provide small, high quality, forb-producing areas resulting from sagebrush removal.

Satisfactory winter habitat for antelope would decline from about 74 percent at present to 50 to 60 percent under this alternative, entirely because of sagebrush removal (figure 3-8). Sagebrush control for livestock purposes would adversely affect 61,739 acres of antelope habitat (including some summer habitat) and would have significant adverse impacts on major antelope winter herds, particularly in the Rocky Hills, Horse Prairie-Buffalo Creek, and Spring Creek-Horse Prairie habitat areas. A total of 10 out of 24 yearlong or winter habitat areas (42 percent) would decline in quality under this alternative, although this decline cannot be attributed solely to sagebrush removal (table 3-26).

New fencing under this alternative would be similar to that for the proposed action, with approximately 100 miles of new fence on antelope habitat. This amount of fence would have the potential for restricting antelope movement and increasing entanglement injuries and mortality.

All major adverse impacts, including the loss of sagebrush and areas ungrazed prior to AMP implementation, could not be mitigated under the constraints of this alternative. Sheep-tight fencing on allotment 0512 would continue to eliminate antelope use from roughly 5,000 acres of public land in the Rock Creek area (table 3-26). Fence modifications carried out according to BLM specifications would not mitigate fencing impacts on antelope, since a bottom wire height of 10 inches is not adequate to allow antelope passage. A deviation from the official specifications to allow a 16-inch minimum bottom wire height would partially mitigate adverse impacts from fencing.

Short-term impacts would be significant as a result of sagebrush treatments on antelope winter range. Large scale mortality of antelope resulting from an absence of sagebrush cover and browse on winter ranges would be probable under this alternative. This would be particularly true on winter ranges in the upper Horse Prairie vicinity. Summer ranges would be reduced in quality for cover and browse, but at a much lower magnitude of impact than that resulting on winter ranges. In the long term, assuming that sagebrush canopies would recover to natural levels dictated by site capabilities, antelope could recover to approximate present conditions.

Under Alternative E, No Action, overall habitat conditions would remain essentially unchanged from present conditions because of poor grazing managment. Twenty-nine percent of all identified summer-fall habitats and 74 percent of all antelope winter-spring ranges would remain in satisfactory condition (figure 3-8). Data are not available to precisely determine range trend on proposed AMPs and custodial allotments, but it is likely that in most cases range conditions would remain static or decline slightly. Herbaceous plant species would be the main habitat factor affected adversely by this alternative.

Antelope-fence conflicts would remain as at present, with 159 miles identified as barriers to antelope movement. The Rock Creek allotment (0512; 5,000 acres) would remain unused by antelope because of sheep-tight fencing.

No new adverse impacts would occur under this alternative that would require mitigation. Fence modification to mitigate current impacts on antelope would occur regardless of management alternative. However, as discussed previously, the present BLM specifications for sheep fence on antelope range do not mitigate adverse impacts, since modified fences would still represent antelope barriers.

Short-term use would not change substantially under the no action alternative, but long-term productivity would be expected to decline slightly or remain static.

Irreversible commitments might include habitat degradation over the long term due to vegetative attrition, which could further reduce the quantity and quality of spring-summer-fall habitat. It is not known how much further present antelope habitats would deteriorate if the current management was continued.

Under Alternative F, Elimination of Livestock Grazing, livestock removal would result in improved habitat quality on 38 major antelope habitats in the study area (table 3-26). Removal of interior division fences would accompany livestock exclusion in each case. The primary benefit would be accrued through the restitution of herbaceous plant species on spring-summer-fall habitats. Forage on winter habitats would be essentially unaffected because antelope forage almost entirely on sagebrush during the winter, and livestock removal would probably have little effect on present sage stands. Interior fence removal would allow better freedom of movement, expansion of habitat areas, and overall improvement of range condition. Ninety to 95 percent of both summer and winter habitat would be in satisfactory condition under this alternative, compared to 29 and 74 percent at present (figure 3-8). Additional boundary fencing to isolate BLM lands would have minor impacts on antelope if fences were built with a minimum 16-inch high bottom wire.

Because of the presumed historic relationship between bison and antelope in North America, it is possible that the most ideal antelope habitat conditions do not result from total livestock exclusion. It has been suggested that pronghorns may thrive best on ranges in a subclimax vegetative condition that would have resulted from fires and use by other large ungulates (Yoakum 1978).

Short-term habitat responses would probably be minor. Long-term productivity of antelope forage would be expected to peak at some level considerably above the present level.

Conclusions—The proposed action (Alternative A) would have the most significant beneficial impacts on poor and fair condition spring and summer ranges. This would be particularly true in the Horse Prairie area, Sheep Creek Basin, and the foothills of the Tendoy Mountains, where antelope summer habitat conditions are believed to be considerably below potential. Critical early spring herbaceous forage availability and abundance on winter ranges would improve overall as a result of deferment and rest. Although reduced AUM allocations would help reverse the decline in range conditions, the primary means of habitat improvement would be through rest and deferment of livestock use. Summer-fall use areas would be expected to undergo the most significant beneficial changes. Habitat condition would be satisfactory on 80 percent of summer range and 85 percent of winter range, compared to 29 and 74 percent satisfactory at present (figure 3-8).

Barrier fences, either woven wire or barbed wire with the bottom wire less than 16 inches high, significantly conflict with antelope movement on both private and public lands. A major unmitigated adverse impact under all alternatives (A through F) stems from the fact that modification of barrier fences to comply with BLM fence specifications on antelope ranges does not always alleviate the problem. On domestic sheep grazing allotments, BLM specifications require a bottom wire height of 10 inches, whereas a bottom wire height of at least 16 inches is normally required to assure passage of antelope. Assuming other factors remained constant, habitat improvements brought about by this action would result in significant increases in antelope populations.

The limited action and no action alternatives (B and E) would maintain the present condition. Lost potential for habitat improvement would be most significant on summer-fall range. Habitat condition would remain the same, with 29 percent of summer and 74 percent of winter habitat satisfactory (figure 3-8). No detectable changes in antelope populations would occur.

Alternative C would benefit antelope primarily through rest and deferment grazing treatments, in association with AUM deductions in specific allotments. Ninety and 85 percent of summer and winter antelope habitats would be in satisfactory condition, compared with 29 and 74 percent at present (figure 3-8). Recommended mechanical land treatment (chiseling, interseeding) for watershed on spring-summer-fall habitat would be mitigated by interseeding forb species that furnish antelope forage. Sagebrush would be sprayed only in areas where no antelope winter use occurs. Modification of fences to a minimum bottom wire height of 16 inches in the Rock Creek allotment (0512) would provide an additional 5,000 acres of quality antelope habitat that is currently devoid of all antelope use. Assuming other factors remained constant, habitat improvements brought about by this action would result in significant increases in antelope populations.

Alternative D would result in satisfactory condition on 70 percent of all summer habitat and 55 percent of winter range, compared to present conditions of 29 and 74 percent, respectively (figure 3-8). Summer improvements would result primarily from implementation of grazing systems (rest and deferment) on habitat where no intensive management had occurred in the past. However, benefits through increased forage production would not be realized for antelope because stocking rates would increase. Satisfactory condition on winter range would decrease from 74 to approximately 55 percent as a result of sagebrush removal. This would have significant adverse impacts on major winter antelope herds, particularly in the Rocky Hills, Horse Prairie-Buffalo Creek, and Spring Creek-Horse Prairie habitat areas, where the loss of sagebrush cover and browse would result in large-scale antelope mortality. Assuming other factors remained constant, short-term reductions in antelope populations would probably occur, followed by long-term recovery and moderate increases above the current level.

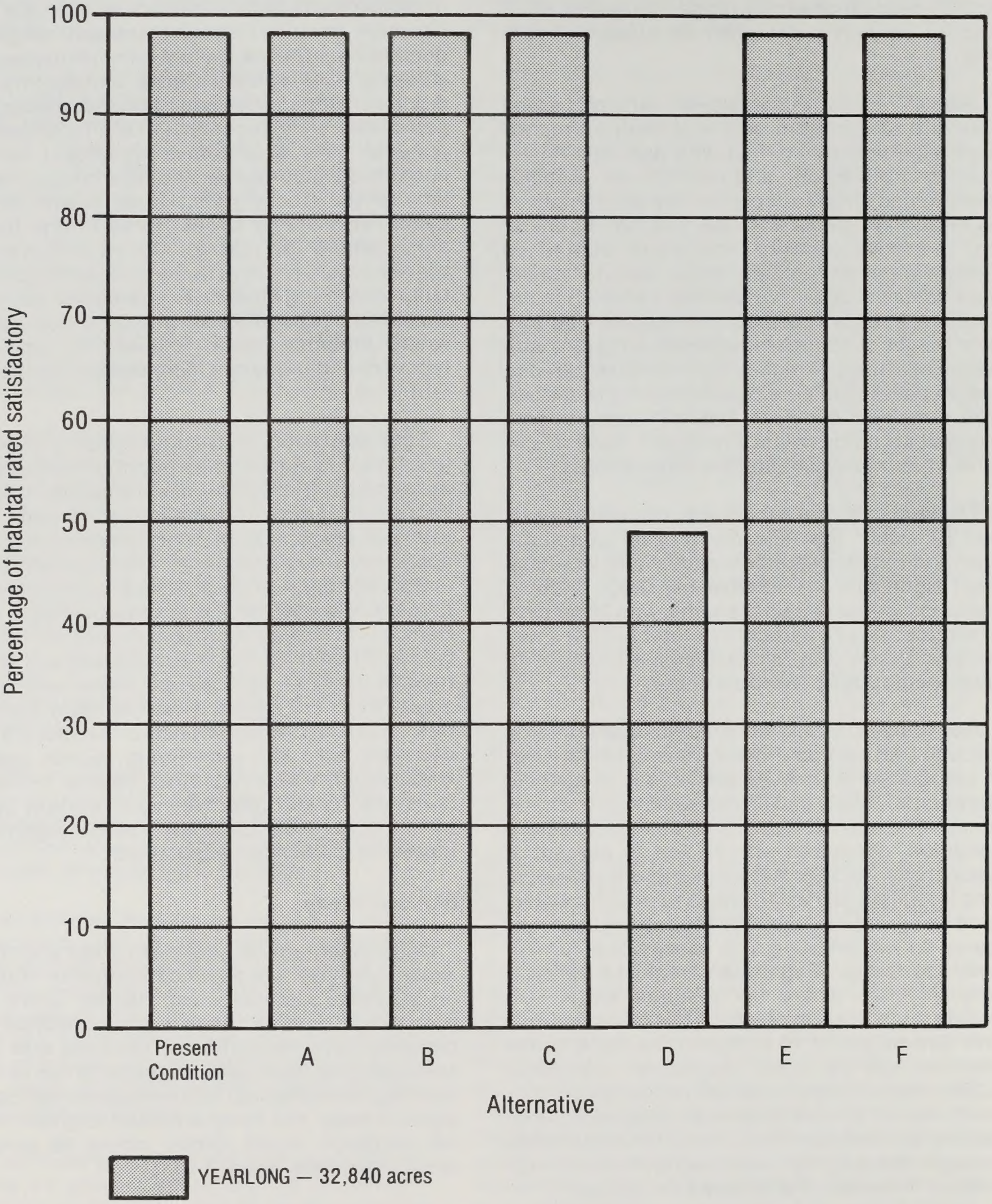
Total exclusion of livestock grazing (Alternative F) would significantly improve habitat quality, primarily through higher availability of forbs. This would improve summer habitat quality to 90 to 95 percent satisfactory, with the same response occurring on winter habitat, compared with satisfactory condition on 29 percent of summer and 74 percent of winter habitat at present (figure 3-8). Removal of interior allotment fences would provide additional habitat in some cases and would remove barriers to antelope movement in all areas. New fencing necessary on BLM boundaries would have minor impacts on antelope if fences were built with a minimum 16-inch bottom wire height. Assuming other factors remained constant, habitat improvements brought about by this action would probably result in significant increases in antelope populations.

Bighorn Sheep

Under Alternative A, proposed grazing systems would not have any significant adverse impacts on occupied bighorn sheep habitat, since bighorn habitats are currently in good conditon and bighorns have no significant conflicts with livestock grazing. Adequate ungrazed areas remain in all bighorn-inhabited allotments because topography is steep and water is limited. Bighorn habitat condition would remain about 98 percent satisfactory (see figure 3-9).

Alternative B, Limited Action, would have the same impact on bighorns as the proposed action and would maintain the current situation. Stocking rates on all allotments that overlap with bighorn habitat would remain the same as in the proposed action. Ungrazed areas would remain

Figure 3-9: IMPACTS ON BIGHORN SHEEP HABITAT



SOURCE: BLM, 1979.

unused by livestock because of distance from water and steepness of terrain. Bighorn habitat condition would remain about 98 percent satisfactory (figure 3-9).

Alternative C, Improved Watershed Values and Wildlife Habitat, would reduce total permitted livestock use by 419 AUMs for the specific benefit of bighorn sheep. The reduction includes 27 AUMs in the Maiden Rock AMP, 72 AUMs in the Gneiting AMP, 150 AUMs in the Moose Creek AMP, and 150 AUMs in the Camp Creek AMP. Elk winter range considerations in the Moose Creek allotment would call for a reduction of 120 AUMs, which would further benefit bighorn. Watershed recommendations in the Moose Creek, Camp Creek, and Gneiting allotments would require reductions of 392 AUMs, and this also would benefit bighorn sheep. Watershed and wildlife recommendations in allotments with bighorn sheep would be entirely compatible and without conflict. The total reduction of livestock allocations on allotments east of Interstate 15 (Moose Creek, Gneiting, and Camp Creek allotments) would be 884 AUMs, or 29.5 percent of the total (3,010). Reductions proposed for allotments west of I-15 (Glendale Common, Maiden Rock) would be 60 AUMs, or 25 percent of the total (237).

Bighorn habitat would remain about 98 percent satisfactory, and additional forage would be available to support substantial population growth if problems with roads and human disturbance were resolved (figure 3-9). Long-term productivity would be guaranteed under this alternative through the forage reservation.

Under Alternative D, Accelerated Livestock Forage Development, adverse impacts on bighorn habitat might be expected. On allotments west of Interstate 15, livestock forage maximization would increase allocations to cattle by 136 AUMs. An estimated 58 AUMs would be added to the Maiden Rock AMP, and 78 AUMs would be added to the Glendale Common AMP. This would be a 32 percent increase in livestock forage allocation over the current actual use, and it would result in reduced forage supplies for bighorn.

On allotments east of Interstate 15, livestock forage allocations would be increased by a total of 2,583 AUMs in the Camp Creek, Gneiting, and Moose Creek allotments. The 25-year projection for maximum forage production on the Moose Creek allotment would be only 16 AUMs, which would not constitute a significant impact. However, increases of 109 and 1,558 AUMs in the Gneiting and Camp Creek allotments would cause serious adverse impacts. Stock use would nearly double in the Gneiting allotment. Range data indicate that the average actual use in the Camp Creek AMP has been about 2,210 AUMs in the past. At this level there do not appear to be conflicts with bighorn sheep, but accelerated livestock grazing could seriously reduce sheep forage availability. The projected increase in livestock forage allocations would be slightly more than 70 percent. This alternative would reduce satisfactory habitat condition for bighorn from 98 percent to 45 to 55 percent (figure 3-9).

Mitigation of impacts from Alternative D could be accomplished in part by controlling water development and salting in such a way as to minimize livestock invasion into ungrazed areas. If fencing could be kept to a minimum, entanglement impacts could also be partially mitigated.

Livestock encroachment upon preferred bighorn habitat would result in severe residual adverse impacts. Any potential for increasing bighorn numbers, after human disturbance factors were resolved, would be lost by following this alternative.

Short-term uses could reduce the long-term productivity of bighorn habitat by forcing more intense livestock-bighorn forage competition. Areas that have remained ungrazed in the past could be eliminated by more concentrated livestock use.

Alternative E, No Action, would result in the maintenance of all bighorn habitat and populations in the study area, with about 98 percent satisfactory condition. Impacts would be the same as under Alternatives A and B (figure 3-9).

Under Alternative F, Elimination of Livestock Grazing, bighorn populations could increase if human disturbance problems were resolved. Elimination of livestock grazing would be compatible with, but not essential to, the population increase. Estimated increases could be 100 to 125 head on the Soap Gulch herd unit, representing 70 to 80 percent more than current numbers. Forage that would be available west of the Big Hole River would probably serve as winter forage for bighorns that will be reintroduced to Forest Service land in the near future. Forest Service biologists expect that a transplant of 20 to 30 animals will eventually increase to a herd size of about 100 to 125 head. Removal of livestock from public land adjacent to this transplant area would improve the chances of successful herd establishment.

The total usable bighorn habitat in the resource area would almost triple, from 33,000 acres to 91,000 acres. The North Tendoy mountain range could provide approximately 15,000 acres of additional suitable habitat for reestablishment. Public land on Blacktail Ridge and parts of Armstead Mountain could also contribute about 76,000 acres of bighorn habitat for reestablishment. Sheep grazing on the Clark Canyon AMP and the Conover AMP restricts the potential for releasing bighorn in this area, because of disease transmission and forage competition. These areas could easily support 200 to 300 bighorn sheep.

Occupied bighorn habitat would remain 98 percent satisfactory (figure 3-9). In addition, there would be an opportunity to reestablish up to 300 bighorn sheep on about 58,000 acres of historic habitat. Short-term actions associated with this alternative would lead to a twofold to threefold increase in total sheep habitat. Total annual vegetation productivity might be slightly lower, but available forage would increase.

Conclusions—Alternatives A, B, and E would have essentially no impact on occupied bighorn sheep habitat, since all areas are currently in satisfactory condition (98 percent) and there is no significant conflict with livestock grazing (figure 3-9). Approximately 58,000 acres of unoccupied historic habitat would remain unsuitable for reintroduction of bighorn sheep. No changes would occur in bighorn populations.

Under Alternative C, reallocation of livestock AUMs would allow moderate increases in herd size and ensure adequate forage availability to enhance future productivity of bighorns. Approximately 98 percent of occupied bighorn habitat would be satisfactory, as at present (figure 3-9).

Increased forage production under Alternative D, along with corresponding increases in stocking rates, would greatly reduce the potential for increased bighorn production because forage supplies would be reduced. Quality on occupied habitats would decline from 98 percent to 50 percent satisfactory (figure 3-9). Assuming other factors remained constant, major declines in bighorn populations would occur.

The elimination of livestock grazing (Alternative F) would be consistent with anticipated herd size increases in Soap Gulch if human disturbance problems were resolved. In other areas, available habitat would increase by about 300 percent, and this increased amount would easily support an additional 200 to 300 bighorn where none occur now. Quality of occupied habitats would remain at about 98 percent satisfactory (figure 3-9).

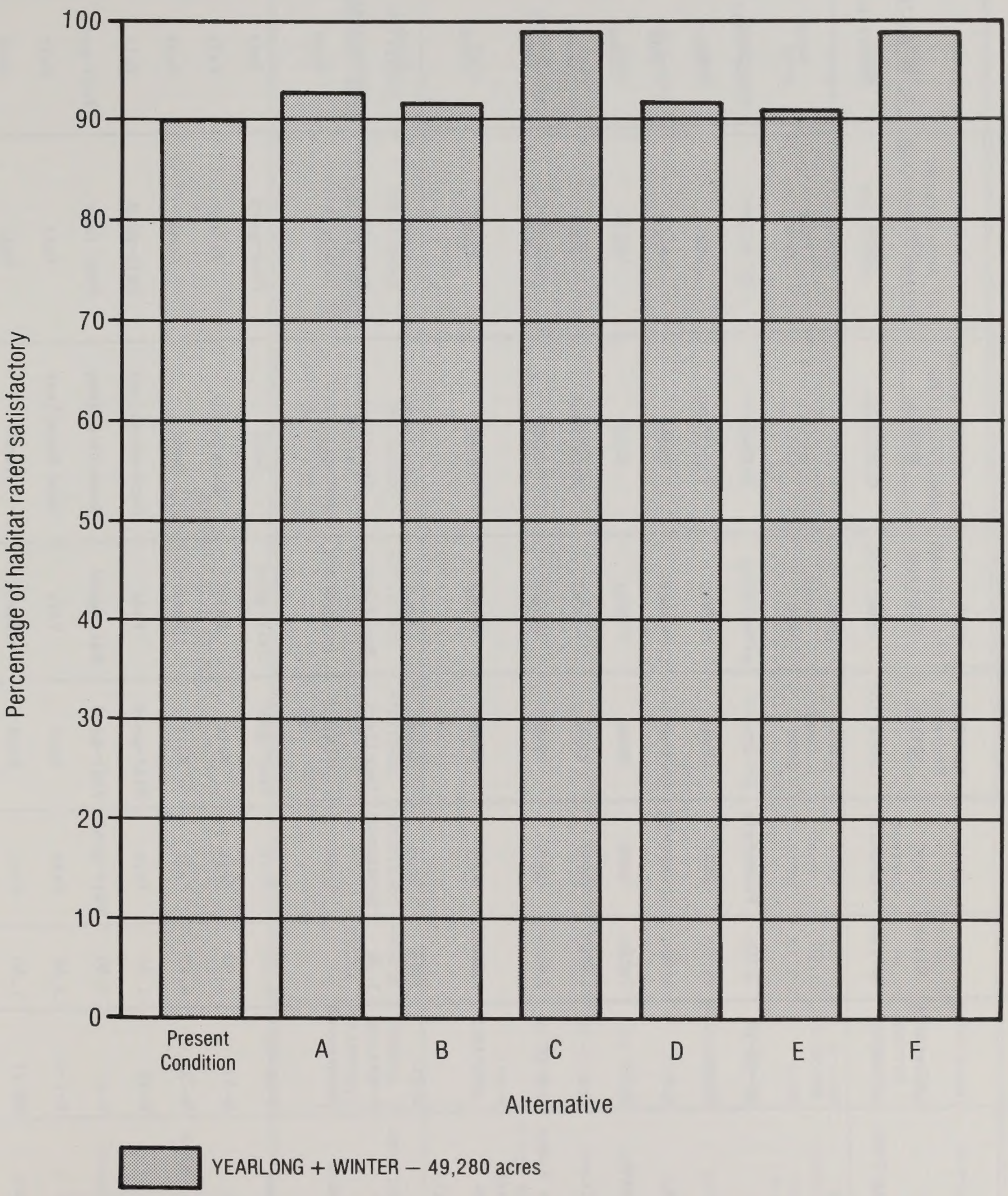
Moose

Moose rely heavily on stream bottom riparian habitat throughout the year and their diet generally consists of at least 80 percent browse species that are found in riparian zones (MDF&G 1969; Knowlton 1960). Riparian habitat quality strongly reflects moose habitat quality, particularly during the winter. Therefore, this discussion of moose habitat condition and the impacts of the various alternatives on that condition are based on detailed surveys of riparian habitat in the study area (see the "Riparian Habitat" portion of this "Terrestrial Wildlife" section). It should be noted that only 10 percent of total moose habitat is strictly in riparian zones throughout the study area. The remaining 90 percent is in mixed spruce-fir and riparian habitat type in the Centennial Valley, and it is considered in satisfactory condition.

Alternative A, the Proposed Action, would have little overall impact on the quality of moose winter habitat. Riparian habitat in 8 allotments out of 31 with substantial moose habitat would be benefited, while the remaining 23 allotments would show no change in riparian habitat quality. Improved browse availability and plant vigor would occur on 12.2 miles of riparian habitat in North Black Canyon (0020), South Black Canyon (0130), Long Creek (0152), and Jones-Peet (0730) allotments because of reduced stocking, range developments, or revised grazing systems, all of which would reduce competition from cattle.

Riparian moose habitat on 4.95 miles of stream in allotments 0167 and 0318 would improve in response to grazing systems favorable to moose. A slight improvement in habitat quality on 6.85 stream miles in allotments 0490 and 0526 would result from decreased stocking levels. With the implementation of this alternative, 24.9 miles of riparian moose habitat would remain in unsatisfactory condition, 12.9 miles of habitat would improve from unsatisfactory to satisfactory, and 36.55 miles would remain in satisfactory habitat condition for moose (see table 3-27). A total of 49.5 miles (67 percent) of surveyed riparian moose habitat would be in satisfactory condition. However, 90 percent of all moose habitat is in the Centennial Valley (100 percent satisfactory) and would not be affected by this alternative. Therefore, the total moose habitat in the study area would be 93 percent satisfactory under Alternative A.

Figure 3-10: IMPACTS ON YEARLONG MOOSE HABITAT



SOURCE: BLM, 1979.

TABLE 3-27

IMPACTS IN MOOSE HABITAT AREAS

Allot-ment Number	Allotment Name	Riparian Survey Number	Miles of Stream	Current Condition	A: The Proposed Action	B: Limited Action	C: Better Water-shed/Wildlife Values	D: Accelerated Forage Production	E: No Action	F: Eliminate Grazing from Public Lands
					Condition	Condition	Condition	Condition	Condition	Condition
0101	Little Divide	DW-50-51	1.70	Good	Good	Good	Good	Fair	Good	Good
0130	South Black Canyon	DW-45-46	2.10	Poor-fair	Good	Poor-fair	Good	Good	Poor-fair	Good-excellent
0145	Lemhi Pass	DW-40	0.50	Fair	Fair	Fair	Excellent	Fair	Fair	Excellent
0152	Long Creek	C-8	2.00	Poor	Good	Poor	Good	Good	Poor	Good
0348	Georgia Gulch	R-35	2.55	Good	Good	Good	Good	Poor	Good	Excellent
0404	Preacher Creek	M-6	1.20	Good	Good	Good	Excellent	Good	Good	Excellent
0421	Strawberry Ridge	M-8-10	2.70	Good	Good	Good	Good	Good	Good	Good
0447	Wallace Peak	M-6-7, 11-16	1.20	Good	Good	Good	Good	Good	Good	Good
0456	Ballard-Mill Gulch	R-24	3.60	Good	Good	Good	Excellent	Good	Good	Excellent
0482	North Fork	R-40	1.30	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
0485	Axolotl Lakes	Unsurveyed	--	Good	Good	Good	Good	Good	Good	Good
0490-0497	Davey-Barton	R-28-31	5.35	Fair	Fair-good	Fair-good	Good	Fair-good	Fair	Excellent
0499	Idaho Jack	R-32	1.30	Fair	Fair	Fair	Excellent	Fair	Fair	Excellent
0507	California Creek	R-21	4.45	Fair	Fair	Fair	Good	Good	Fair	Excellent
0526	Dry Lakes	R-23	1.50	Fair	Fair-good	Fair	Good-excellent	Fair-good	Fair	Good-excellent
0531	Copper Mountain	R-2	3.80	Fair-good	Fair-good	Fair-good	Good-Excellent	Poor-fair	Fair-good	Excellent
0730	Jones-Peet	C-1-4	3.60	Fair	Good	Fair	Good-Excellent	Fair	Fair	Excellent
0745	Taylor Creek	DW-27	1.50	Good	Good	Good	Good	Fair	Good	Excellent
0004	Selway	DW-44	0.90	Poor-fair	Poor-fair	Poor-fair	Poor-fair	Poor-fair	Poor-fair	Good-excellent

Table 3-27, page 2

Allot-ment Number	Allotment Name	Riparian Survey Number	Miles of Stream	Current Condition	A: The Proposed Action	B: Limited Action	C: Better Water-shed/Wildlife Values	D: Accelerated Forage Production	E: No Action	F: Eliminate Grazing from Public Lands
					Condition	Condition	Condition	Condition	Condition	Condition
0018, 0036	Bear Creek	DW-41-42	2.80	Fair	Fair	Fair	Good-excellent	Fair	Fair	Excellent
0020	North Fork Black Canyon	DW-32-34	4.50	Fair	Good	Poor	Good	Fair-good	Fair-good	Good
0034	Red Mine	DW-25-26	1.75	Fair	Fair	Fair	Good	Fair	Fair	Good-excellent
0037	Baldy Mountain	DW-1-14	8.00	Good	Good	Good	Good	Good	Good	Excellent
0040	Price Creek	C-6-7	2.50	Poor-fair	Poor-fair	Poor-fair	Good	Poor	Poor-fair	Good
0042	Meadow Creek	Unsurveyed	2.10	Good	Good	Good	Good	Good	Good	Excellent
0167	Robb Creek	BL-28-30	4.20	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
0303	Moose Creek	RO-4	2.75	Good	Good	Good	Good	Good	Good	Excellent
0308	Camp Creek	RO-1-3	3.75	Good	Good	Good	Good	Good	Good	Excellent
0318	Jerry Creek	RO-1-6	0.75	Fair	Good	Good	Excellent	Good	Good	Excellent
0701	Tom Creek	Unsurveyed	--	Good	Good	Good	Good	Good	Good	Excellent
--	Sheep Mountain	Unsurveyed	--	Good	Good	Good	Good	Good	Good	Excellent

SOURCE: BLM, 1979.

Adverse impacts through grazing and trampling of riparian habitat would occur as long as cattle were present, regardless of stocking levels. Riparian zones are close to water and provide shade and succulent forage, which would be attractive to any cattle in the area. Out of 74.35 miles of surveyed riparian habitat, 24.85 miles (33 percent) would remain in unsatisfactory condition as moose habitat.

Alternative B, Limited Action, would affect only 3 allotments out of 31 with moose habitat; the rest would remain in the present condition (table 3-27; figure 3-10). Riparian habitat quality in North Black Canyon (0020) would decline, since the range developments proposed in Alternative A (fence alteration and water development) would not be implemented, and continued grazing, even at a reduced level, would still concentrate cattle in riparian habitat. This area would remain in unsatisfactory condition because of poor riparian vegetation vigor and reproduction.

The Jerry Creek (0318) and Robb Creek (0167) allotments would improve in response to grazing systems that would protect riparian habitat. Jerry Creek would improve from unsatisfactory to satisfactory condition when trespass problems were eliminated and a short, early-season period of use was continued. Allotment 0167 would improve from good to excellent condition (satisfactory) in response to range developments (fencing) and better-controlled grazing.

No mitigating measures would be required for the Jerry Creek (0138) and Robb Creek (0167) allotments. Allowing range developments to be installed in North Black Canyon (0020) would prevent continuing riparian habitat degradation and improve habitat quality.

Residual adverse impacts would remain on fourteen allotments, with 37 miles (50 percent) of surveyed riparian habitat in unsatisfactory condition primarily because of livestock grazing.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, the impacts of reducing livestock grazing, alteration of grazing systems, and implementation of range developments would improve moose habitat condition significantly, reducing livestock competition to a level that would prevent future grazing from degrading moose habitat. This action would result in satisfactory condition on 96 percent of the 74.35 miles of stream riparian reaches that were surveyed in 28 allotments with substantial moose habitat (figure 3-10). Riparian habitat has not been surveyed in three other allotments, but it is assumed that moose habitat in these areas would remain in satisfactory condition.

As a result of actions taken in this alternative, 36.55 miles of riparian habitat in 13 allotments would remain in satisfactory condition, 36.9 miles in 14 allotments would improve from unsatisfactory to satisfactory condition, and 0.9 miles of riparian habitat in one allotment would remain in unsatisfactory condition for moose (table 3-27). This last allotment would remain in unsatisfactory condition because present management would not change, and current poor to fair habitat conditions would persist. However, this would not have a substantial adverse impact on the overall quality of moose habitat in the area.

Total moose habitat would be 95 to 99 percent satisfactory as a result of this alternative (figure 3-10). Mitigating measures would not be applicable, since all such measures were considered and incorporated in the development of this alternative.

Continued livestock grazing would have minor residual adverse impacts on riparian habitat, regardless of stocking levels. However, under the stocking limits of this alternative, continuing competition from cattle would have an insignificant effect on the quality of moose habitat.

Under Alternative D, Accelerated Livestock Forage Development, the impacts of accelerated forage production and subsequent increases in stocking rates would generally not improve moose habitat. Livestock would continue to congregate in riparian habitat, with resulting adverse impacts on browse availability and on plant height, vigor, and reproduction. As increased numbers of livestock would generally prevent habitat improvement, the current condition would be maintained, although some changes in quality would occur. This action would result in 54 percent, or 40.1 miles, out of 74.35 miles of riparian habitat surveyed in 28 allotments, being in satisfactory condition (figure 3-10). Total moose habitat would remain 90 to 95 percent satisfactory.

A total of 30.8 miles of riparian habitat in I0 allotments would remain in satisfactory condition with the implementation of this alternative. Improved habitat condition from unsatisfactory to satisfactory condition would occur on 9.3 miles of moose habitat in 4 allotments. This improvement would result primarily from better-controlled grazing under established grazing systems on 4 allotments, North Black Canyon (0130), South Black Canyon (0152), California Creek (0507), and

Jerry Creek (0318). Unsatisfactory habitat condition would be maintained on 28.5 miles of riparian habitat on 11 allotments, and 5.75 miles on 3 allotments would decline in habitat quality from satisfactory to unsatisfactory under this alternative (table 3-27). Declining quality would be due to high stocking rates and hot season use.

The only practical mitigative measures to enhance unsatisfactory habitat quality for moose would be to greatly reduce livestock stocking levels or to eliminate grazing altogether. However, both of these measures contradict the goals of this alternative, and therefore would not be available.

Residual adverse impacts from unsatisfactory habitat condition for moose would persist on 34.25 miles of riparian habitat, including 5.75 miles that would decline from satisfactory condition. This represents 46 percent of all riparian habitat surveyed.

Under Alternative E, No Action, the current habitat quality would be maintained, with 90 percent of moose habitat in satisfactory condition (figure 3-10). Slight improvement would occur on the Jerry Creek (0318) and Robb Creek (0167) allotments in response to continuation of existing management plans that provide for improved riparian habitat quality, which would benefit moose (table 3-27).

Under Alternative F, Elimination of Grazing from Public Lands, the influence of livestock grazing on riparian habitat would improve moose habitat quality dramatically. All reaches of surveyed riparian habitat (74.25 miles) would improve to good or excellent (satisfactory) condition, with the only limiting factors being site limitations (table 3-27). Riparian vegetation would improve to maximum capabilities of vigor and reproduction unless restricted by big game use. This would provide optimum habitat conditions for moose, and 95 to 99 percent of all habitat would be considered satisfactory (figure 3-10).

No mitigative measures would be necessary to enhance moose habitat under this alternative. Short-term impacts under this alternative would not limit or jeopardize future management options for moose. In fact, the elimination of grazing would greatly improve long-term productivity of riparian habitat and consequently improve moose habitat. Increased productivity of the moose population would be expected, but the degree of increase could be limited by factors other than habitat quality, such as population density, limited habitat, or harvest quotas.

Conclusions—Moose habitat in the study area lies mainly in the Centennial Valley. The remaining 10 percent of moose habitat is strictly in stream bottom riparian zones. Currently, 90 percent of all moose habitat is in satisfactory condition, but only 49 percent of surveyed riparian moose habitat is satisfactory.

The proposed action (Alternative A) would have minor effects on moose habitat, with 93 percent of all habitat in satisfactory condition and 67 percent of riparian moose habitat in satisfactory condition. Benefits would accrue primarily from improved grazing management on riparian habitat. However, there would be negligible impact on moose habitat quality in the Centennial Valley, which provides 90 percent of the total moose habitat and is considered in satisfactory condition. No population response would be evident.

The limited action alternative (B) would have no impact on moose habitat quality, since only two riparian habitat areas would be affected; 91 percent of all habitat and 50 percent of riparian moose habitat would be in satisfactory condition, compared to 90 percent and 49 percent at present.

Under Alternative C, significant improvements on riparian habitat would result on 99 percent of all moose habitat and 96 percent of riparian moose habitat being in satisfactory condition. The improvement in moose habitat condition would result solely from improved riparian habitat quality; present satisfactory conditions on Centennial moose habitat would not be changed. Assuming other factors remained constant, a moderate increase in moose population would be expected.

Accelerated livestock forage development (Alternative D) would slightly improve habitat condition, primarily through improved management in certain areas. All moose habitat would be 91 percent satisfactory, and 54 percent of riparian habitat would be satisfactory. However, degradation of currently unsatisfactory habitat would continue because of higher stocking levels and hot season grazing of riparian zones. No population response would be evident.

The no action alternative (E) would have no effect on moose habitat; 90 percent would remain in satisfactory condition, as at present.

Without the influence of livestock grazing (Alternative F), 95 to 100 percent of moose habitat in the study area would be in satisfactory condition (figure 3-10). Moose needs would be met in all areas to the extent possible under natural limits of available habitat and restrictions to population growth such as population density or harvest quotas. A moderate increase in moose populations would be expected.

Sage Grouse

Sage grouse habitats were evaluated on the basis of breeding areas, which included strutting and nesting complexes, and nonbreeding areas, which included areas frequented during the summer-fall-winter period. Sagebrush canopies, critical to nesting success, were a major consideration in the evaluation of impacts on breeding areas. On nonbreeding habitats, sagebrush retention was considered the most crucial issue on winter range and slightly less important on the summer-fall areas. Forb compositions and density were used as major criteria for evaluation on the summer-fall areas. Sage grouse seasonal habitats are poorly defined in the study area at present. Radical sagebrush control measures in peripheral regions adjacent to known use areas were viewed as major impacts.

Under Alternative A, the Proposed Action, summer habitat would improve on 80 allotments, remain in satisfactory condition on 52 allotments, and be affected adversely on 30 allotments. Winter habitats would remain largely unchanged except for the Cross allotment (0033) in the Horse Prairie area. Both nonbreeding and breeding habitats would be 70 percent satisfactory under this alternative (see figure 3-11).

Livestock grazing would not have a significant effect on sage grouse winter range, since sheep winter grazing is not a major use and cattle use would not be expected to reduce sagebrush cover. All declines in habitat condition would be related to reductions in existing sagebrush cover through vegetation manipulation. The most severe impact would occur on the Cross allotment (0033) in the Horse Prairie area, where a total of 831 acres would be sprayed and seeded to maximize livestock forage. This action would constitute a major unmitigated adverse impact in view of the high value this area has as winter range for sage grouse and antelope and as nesting habitat for sage grouse.

Summer habitat improvement and maintenance would be attributable to an increase in the percentage of forbs in the plant cover. A majority ot the beneficial aspects of the proposed action are related to more favorable livestock turnout dates, rest, and periods of deferment. Rest and deferment treatments are viewed as essential in improving fall and summer (nonbreeding) habitat. AUM reductions would hasten habitat improvement by decreasing grazing pressure.

The following ten nonbreeding (summer) habitat areas would improve from fair to good under the proposed action: Rocky Hills, Spring Creek, Badger Gulch-Rawhide Birch-Willow Creek, East Pioneer Reservoir Creek, Badger Gulch, Muddy Creek, Alkali-Cabin Creek, and the West Fork of Blacktail Creek (see table 3-28).

The short-term benefits of generally improved habitat conditions would extend into the long term. As wildlife populations became adjusted to the improved habitat conditions, numbers would be expected to increase accordingly.

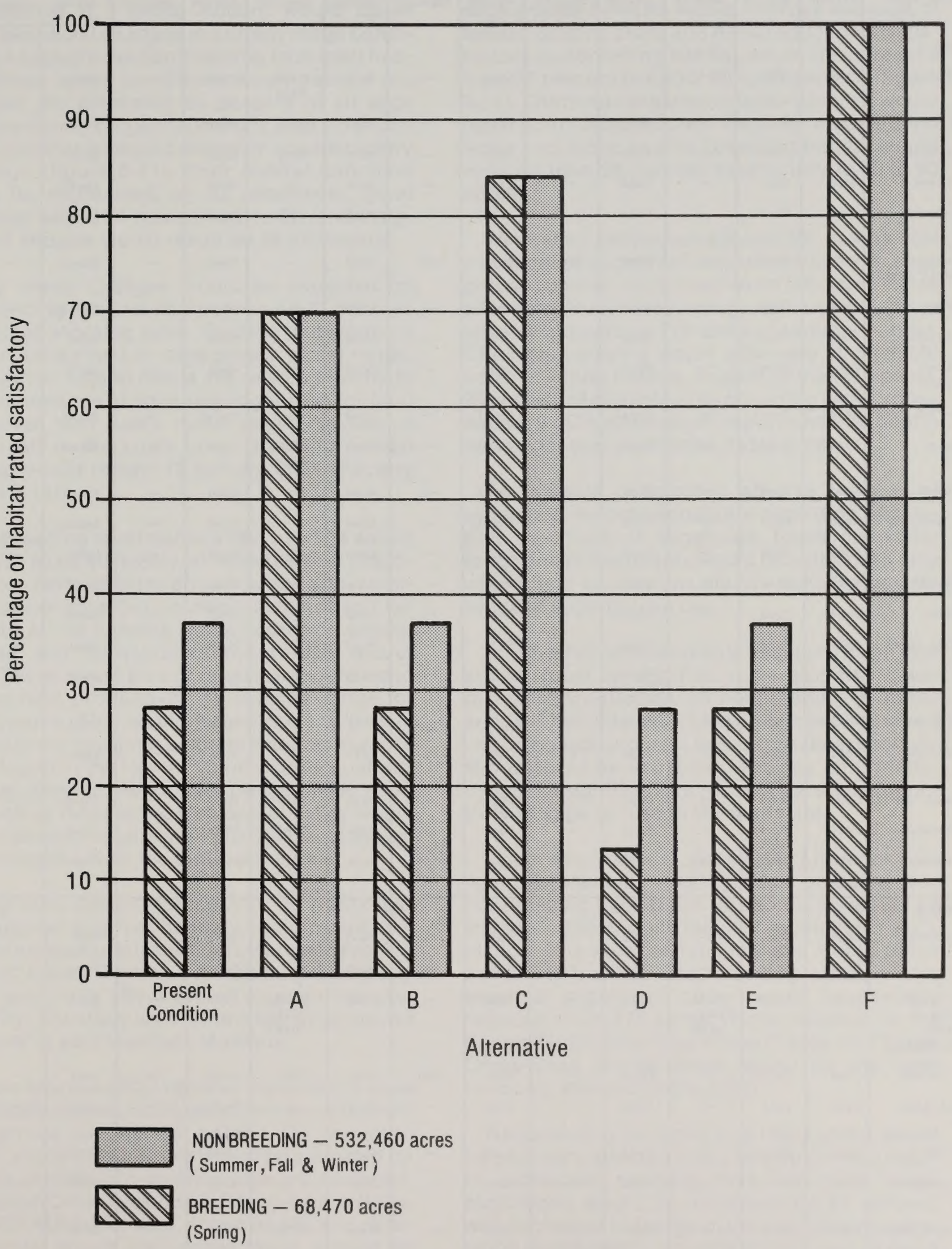
A majority of the adverse impacts could be mitigated through adjustment of turnout dates and institution of rest periods. Lighter stocking rates would benefit sage grouse summer habitat on the following habitat areas: Muddy Creek, Alkali-Cabin Creek, West Fork Blacktail Creek, Sage Creek, Sweetwater Basin, Sweetwater, Burns Mountain, and Timber Butte (table 3-28).

Proposed burning and spraying projects for sagebrush removal could be mitigated by abandoning such actions in favor of optimal grazing management systems. This would allow natural herbaceous plant recovery where possible. If desired herbaceous response failed to occur after several cycles, vegetation treatments could then be pursued. This would apply to each of the alternative actions.

Sagebrush spraying and seeding on the Cross allotment would adversely affect short-term productivity by lowering habitat carrying capacity for both breeding and nonbreeding birds. A drastic reduction in winter use and nesting use would occur on the spray area. Forb production would be curtailed for about 10 years, thus rendering the area less productive in terms of its potential for summer use. Sage recovery would probably not occur for 15 to 30 years, but full recovery would occur in the long term.

On a majority of the allotments, the long-term overall impact of the proposed action would generally be beneficial because of anticipated in-

Figure 3-11: IMPACTS ON SAGE GROUSE HABITAT



SOURCE: BLM, 1979.

TABLE 3-28

IMPACTS ON SAGE GROUSE HABITAT AREAS

Season/ Habitat Area	Current Con- dition	A: The Proposed Action		B: Limited Action		C: Better Water- shed/Wildlife Values		D: Accelerated Forage Production		E: No Action		F: Eliminate Grazing from Public Lands	
		Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Residual Adverse Impacts	Con- dition	AMPs with Major Resid. Adverse Impacts
Breeding													
Rocky Hills	Fair	Good	--	Fair	--	Good	--	Fair	0148, 0124	Fair	--	Good	--
Spring Creek	Poor	Good	--	Poor	--	Good	--	Poor	0035	Poor	--	Good	--
Barrett Creek	Fair	Fair	0019	Fair	--	Good	--	Poor	0032	Fair	--	Good	--
Muddy Creek	Good	Good	--	Good	--	Excel.	--	Fair	--	Good	--	Excel.	--
Alkali-Basin Creek	Good	Good	--	Good	--	Excel.	--	Fair	0158	Good	--	Excel.	--
West Fork Blacktail Creek	Good	Good	--	Good	--	Good	0137	Good	--	Good	--	Excel.	--
Sage Creek	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Excel.	--
Basin Creek	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
South Lima Reservoir	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Metzel-Fish Creek	Excel.	Excel.	--	Excel.	--	Excel.	--	Good	--	Excel.	--	Excel.	--
Sweetwater	Good	Good	--	Good	--	Excel.	--	Good	0518, 0469	Good	--	Excel.	--
Burns Mountain	Good	Good	--	Good	--	Excel.	--	Good	--	Good	--	Excel.	--
Timber Butte	Good	Good	--	Good	--	Excel.	--	Good	--	Good	--	Excel.	--
Ermont	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Dyce-Taylor Creek	Good	Good	--	Good	--	Good	--	Poor	0122	Good	--	Good	--
Mill Point	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Reservoir Creek	Fair	Good	--	Fair	--	Fair	--	Poor	0122	Fair	--	Good	--
Badger Gulch	Fair	Good	--	Fair	--	Good	--	Fair	0033, 0031	Good	--	Good	--
Rochester Basin	Fair	Fair	--	Fair	--	Poor	0324	Fair	--	Fair	--	Good	--
Birch-Willow Creek	Fair	Good	--	Fair	--	Good	--	Fair	--	Fair	--	Good	--
Sweetwater Basin	Good	Good	--	Good	--	Excel.	--	Fair	0518	Good	--	Excel.	--
Table Mountain	Fair	Fair	--	Fair	--	Good	--	Poor	0469	Fair	--	Good	--
East Pioneer	Fair	Good	0131, 0133	Fair	--	Poor	0320, 0335, spray	Poor	0320, 0337, 0328	Fair	--	Good	--
Nonbreeding													
Argenta Flats	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Ermont	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Badger Gulch-Bachelor Mountain-Watson-Rawhide	Fair	Good	0033, 0031, 0148	Fair	--	Good	--	Poor	0148, 0031, 0033	Fair	--	Good	--
Horse Prairie	Good	Good	--	Good	--	Fair	0031	Poor	0035	Good	--	Good	--
Ashbough-Sage Creek	Fair	Fair	--	Fair	--	Good	--	Fair	--	Fair	--	Good	--
Sage Creek	Good	Good	--	Good	--	Good	--	Good	--	Good	--	Good	--
Wolverine-West Creek	Good	Good	--	Good	--	Good	--	Poor	0740	Good	--	Good	--
Price-Peet Creek	Fair	Fair	--	Fair	--	Good	--	Poor	0730	Fair	--	Fair	--
Tepee Creek-Sand Dunes	Good	Good	--	Good	--	Good	--	Poor	0710	Good	--	Good	--

SOURCE: BLM, 1979.

creases in herbaceous plant production and sagebrush retention.

Alternative B, Limited Action, would cause minor beneficial changes in current range conditions on sage grouse nonbreeding (summer) habitat. Winter range conditions would remain unchanged. An estimated 63 percent of all sage grouse summer range in the study area (in a total of 154 allotments) would remain in unsatisfactory condition (figure 3-11). Poor habitat condition would be maintained on 63 allotments, good condition would be maintained on 23, and insignificant impacts would result on 68 allotments.

Only minor changes would be expected on nonbreeding habitats (summer and fall) because of reduced stocking rates. Grazing management has very little effect on sage grouse winter range, since winter habitat needs are related directly to the maintenance of adequate sagebrush for food and cover, and cattle make negligible use of sagebrush in the study area. Breeding habitat (spring) would remain 72 percent unsatisfactory (figure 3-11).

Nonbreeding (summer and fall) habitats would continue to be adversely affected by past practices. Forb compositions and densities would continue below potential on mesic summer and fall habitats. Minor benefits would accrue on spring, summer, and fall habitats through AUM reductions. There would be a gradual downward trend in long-term productivity on summer range for sage grouse. This would be particularly true in the relatively marginal summer habitats such as those found in the Horse Prairie vicinity or along the east slope of the Pioneer range. Mesic habitats such as those in the Centennial Valley would remain good for sage grouse production, although at some level below the biotic potential.

Long-term habitat degradation on nonbreeding (summer and fall) habitats could cause irretrievable losses of site productivity due to erosion and soil losses. The loss in habitat productivity could eventually affect overall sage grouse productivity. The study area is the major sage grouse producer in southwestern Montana.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, AUM reductions would benefit sage grouse summer-fall habitat. On two allotments, a total of 381 AUMs would be allocated for the sole purpose of benefiting sage grouse breeding habitat. Other livestock AUM reductions (totaling 2,429 AUMs) for deer, antelope, elk, and riparian habitat would also benefit sage grouse on their nonbreeding (summer-fall) use areas. Proposed sagebrush treatment on the Cross allotment would be eliminated. It is estimated that all sage grouse habitats would improve because of revised grazing plans and AUM reductions. Satisfactory nonbreeding habitat would be increased from 37 percent to about 80 to 90 percent (figure 3-11). The remaining unsatisfactory habitat would result from livestock concentration in areas around water and moist swales. Breeding habitat would improve from 28 percent satisfactory to 80 to 90 percent.

Watershed recommendations for mechanical treatment of sagebrush would conflict with sage grouse summer habitat values on 500 acres in one allotment. Watershed burn proposals would have adverse impacts on 110 acres of summer habitat. Chemical spraying would adversely affect 1,200 acres of winter habitat. In spite of these impacts, 95 percent of all allotments providing sage grouse habitat would maintain or improve habitat condition under this alternative (table 3-28).

To mitigate anticipated adverse impacts of watershed recommendations regarding vegetation treatment of sagebrush types on winter range, these treatments would be authorized only where field evaluations clearly indicated an absence of sage grouse use.

Short-term improvements resulting from this action would be significant. Increased herbaceous plant productivity on nonbreeding (summer and fall) habitats would have the most important impact on sage grouse. Long-term habitat improvements could be expected to cause an undetermined but significant increase in the total productivity of sage grouse in the study area.

Under Alternative D, Acclerated Livestock Forage Development, sage grouse breeding and nonbreeding habitats on 22 allotments would be adversely affected as a result of vegetation manipulation. The most serious impacts would occur on winter habitats and breeding areas, where essential sagebrush cover would be severely reduced on 20,875 acres. Winter habitats on the Badger Gulch-Rawhide, Horse Prairie, and Tepee Creek-Sand Dunes areas would be the most seriously affected (table 3-28).

Nonbreeding (summer and fall) habitat would be adversely affected under this option as a result of accelerated stocking rates. Livestock forage allocations would be increased by 45 percent, with increases in forage made available by vegetation manipulation. Adverse impacts would result from reductions in the total herbaceous canopy available for foraging and brood rearing. The availability of forb species of value as summer foods would be reduced. Smaller insect populations, which are important in the diets of young sage grouse, would also result from reduced herbaceous cover. Satisfactory nonbreeding habitat would decline from 37 percent to 25 to 30 percent (figure 3-11). Sagebrush cover reductions on 36,980 acres of sage grouse breeding habitat would severely affect nesting success. This would cause a 58 percent reduction in total identified nesting habitat in the study area. Satisfactory breeding habitat would decline from 28 percent to 10 to 15 percent (figure 3-11).

Short-term and long-term productivity on sage grouse summer habitats would be expected to decline. Reduced productivity would be related to reduced herbaceous vegetation and significant removal of sagebrush security cover. Some sagebrush recovery would be expected to occur within about 15 to 30 years; however, sage grouse populations would probably not recover to current levels. The adverse impacts associated with livestock concentration in swales and creek bottoms, which is viewed as a significant conflict with sage grouse in the study area, would be aggravated by heavier stocking rates.

Under Alternative E, No Action, approximately 28 percent of sage grouse breeding habitats and 37 percent of sage grouse nonbreeding habitats would be in satisfactory condition, as at present (figure 3-11). Nonbreeding (winter) habitat would be unaffected under this course of action, since sagebrush canopies would be maintained at current levels.

Summer habitat in the drier regions of the study area would be the most adversely affected under this alternative. Heavy annual grazing use would continue on the mesic habitats that are key summer use areas for sage grouse. Higher elevation habitats such as those found in the Centennial Valley would be maintained slightly below potential. The loss in habitat productivity would be more significant in Badger Gulch, Rocky Hills, Spring Creek, Reservoir Creek, and the east slope of the Pioneer Mountains habitat areas (see table 3-28).

Long-term productivity would probably decline slightly because of the lack of proper livestock grazing management. Breeding habitats would remain in 28 percent satisfactory condition, and nonbreeding habitats would remain in 37 percent satisfactory condition.

Alternative F, Elimination of Livestock Grazing, would result in improved habitat conditions on 22 nonbreeding (summer) habitat areas (table 3-28). On an allotment basis, 80 percent of all grazing units providing sage grouse summer range would be improved, and the remaining 10 percent would be unaffected. Winter ranges would be maintained by this action. Livestock removal would have little or no effect on existing stands of sagebrush on identified winter ranges.

Nonbreeding (summer and fall) habitat improvements would be related to increased forb and insect productivity on mesic sagebrush habitat types. Herbaceous cover and forage normally eliminated by livestock grazing would be reserved, thus providing a maximum amount of high quality habitat. The most significant improvements would occur on Rocky Hills, Spring Creek, Barrett Creek, Ashbough-Sage Creek, Birch-Willow Creek, Sweetwater Basin, Table Mountain, East Pioneer, Reservoir Creek, and Badger Gulch (table 3-28). Summer and winter habitats combined (nonbreeding) would improve from the present 37 percent satisfactory to 100 percent satisfactory. Breeding habitats would improve from the present 28 percent satisfactory to 100 percent satisfactory.

The short-term response would be a gradual improvement in sage grouse prod uctivity as habitat conditions improved. Long-term productivity of sage grouse would increase in response to the availability of high quality habitat. Long-term productivity would be greatest on those habitat areas where sage grouse have been the most severely limited by grazing activity: Rocky Hills, Spring Creek, Barrett Creek, Ashbough-Sage Creek, Birch-Willow Creek, Sweetwater Basin, Table Mountain, East Pioneer, Reservoir Creek, and Badger Gulch (see table 3-28).

Conclusions—The proposed action, Alternative A, would be beneficial to sage grouse where forb composition is the key habitat need, such as in the Horse Prairie vicinity and on lands adjacent to the Tendoy Mountains. Although reduced livestock forage allocations (11 percent overall) would improve present poor conditions, the primary beneficial change would occur through rest and deferment of livestock grazing.

The limited action and no action alternatives, B and E, would maintain the status quo, leaving wildlife habitat considerably below its potential on areas where forbs are key habitat components. Winter ranges would be maintained at current levels (see figure 3-11).

Alternative C would be slightly less beneficial overall than total livestock exclusion, because watershed proposals for sagebrush control would conflict with sage grouse needs. Total livestock removal (Alternative F) would result in 100 percent of the sage grouse habitat being in satisfactory condition. Except for wildlife conflicts with watershed land treatment proposals, Alternatives C and F would be identical in terms of impacts to sage grouse.

Accelerated livestock forage production (Alternative D) would have the most significant adverse impacts because of browse removal. Nesting areas and winter complexes would be severely affected. Any improvements in herbaceous plant production resulting from the implementation of grazing systems would be more than offset by the adverse impact resulting from sagebrush control on nesting areas (see figure 3-11).

Mountain Grouse

Blue grouse, ruffed grouse, and spruce grouse all occur within the study area. Ruffed grouse occupy primarily deciduous riparian habitat and are found only in minor numbers on public land. Spruce grouse primarily inhabit higher elevation conifer habitat types and are not affected by livestock grazing. Therefore, neither of these species will be discussed further. Blue grouse, however, are widespread throughout the study area, and because of their preference for timber-grassland edges and riparian zones, they are influenced by grazing management.

Grazing influences on blue grouse habitat are assessed in this EIS according to research findings that have been completed in Washington, Idaho, and southwestern Montana. The most pertinent papers concerning grouse management and grazing relate livestock use with preferred grouse summer ranges, since this is the area of competition between the two. Mussehl (1968) studied this grazing relationship for six years in the Bridger Mountains outside of Bozeman, Montana, and concluded that herbaceous cover was a very important component of the blue grouse brood-rearing period. He concluded that grazing could have an adverse impact on blue grouse when herbaceous layers were modified by stock grazing. Both bunchgrass and forb species were recognized as important brood cover, and they were noted to be effective habitat when they had relatively consistent physical characteristics of height, canopy coverage, and plant interspersion.

Livestock grazing and trampling modify the natural conditions and hence reduce the overall habitat quality. Zwickel (1972) found some indication that the proportion of successful breeding hens may have been highest on ungrazed areas when compared with comparable grazed sites. A host of other researchers have suggested that heavy grazing by domestic livestock may affect numbers of blue grouse (Marshall 1946; Zwickel 1958; Buss 1960; Hamerstrom and Hamerstrom 1961; Zwickel, Buss, and Brigham 1968).

Areawide there are 133 grazing allotments (proposed, existing, revised, and custodial) which provide some blue grouse habitat. Habitat areas have not been quantified or mapped, but it is assumed that virtually all timbered lands interspersed with mountain sagebrush and all riparian habitat in the close vicinity of such timbered areas provide suitable spring-summer-fall habitat.

The proposed action, Alternative A, would provide improvements in the amount of available cover and forage for blue grouse through reductions in stock numbers, seasonal deferments, and the institution of rest treatments where none is practiced at present. Since blue grouse summer use is highly dependent upon quality herbaceous ground cover, changes in grazing management that would favor herbaceous ground cover would be viewed as positive steps toward habitat enhancement. These improvements would be realized during both the long term and the short term. Forty-seven percent (62) of all allotments with blue grouse habitat would undergo habitat improvement under this alternative. Nineteen percent (26) would be adversely affected, and 34 percent (45) would be unaffected.

Under Alternative B, Limited Action, minor improvements in blue grouse habitat could be expected from the overall reduction in stocking rates resulting from the most recent range survey. These improvements would contribute to improved habitat conditions but would not solve most identified problems of substandard herbaceous cover. Seventeen percent (23) of 133 allotments with blue grouse habitat would improve under this alternative; 36 percent (48) of the allotments would sustain adverse impacts; and 47 percent (62) would not be substantially affected.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, 90 percent (120) of all allotments providing blue grouse habitat would benefit. The remaining 10 percent (13 allotments) would not be substantially affected. Benefits would accrue by reductions in permitted livestock use and implementation of regular periods of rest and deferment. Positive effects would be realized in both the short term and the long term. Under this alternative, almost all limiting factors controlled by grazing influences would be eliminated. Adequate herbaceous forage and cover within site capabilities would be provided on all known blue grouse habitats. Long-term improvements would include a net increase in blue grouse production on public lands.

Alternative D, Accelerated Livestock Forage Development, would cause substantial reductions in the total amount of satisfactory blue grouse habitat. Under this alternative, only one allotment (1 percent) with blue grouse habitat would benefit, 117 allotments (88 percent) would be adversely affected and decline in quality, and 15 allotments (11 percent) would not be affected. Proposals for sagebrush control by burning and spraying would affect roughly 60,000 acres of public land that supports blue grouse. This figure is considered a rough estimate because it is not possible to pinpoint the extent of all habitat areas. The benefits from increased herbaceous production by burns would be offset by the large-scale removal of brush, which provides nesting and hiding cover. Spraying would result in a short-term loss of forbs, which are primary spring-summer-fall food items.

Heavier stocking rates would increase livestock use on riparian habitats, which are used during the summer and fall period. This would have an adverse impact on blue grouse by removing larger amounts of plant cover and forage. It is likely that areas that have been historically unused by livestock would be subjected to grazing pressure resulting from further water development. Thus, new competition would be initiated.

Short-term and long-term impacts resulting from this action would be adverse but not irreversible.

Under Alternative E, No Action, blue grouse habitat would be held below potential by the lack of intensive grazing management on a majority of allotments. Responses of blue grouse spring-summer-fall habitats would be the same as in the limited action alternative. The condition of 17 percent (23) of all allotments would improve, 36 percent (48) would be adversely affected, and 47 percent (62) would remain in a condition that would not be substantially affected.

Under Alternative F, Elimination of Livestock Grazing, livestock removal would benefit blue grouse on 90 percent (120) of all allotments. The remainder are already considered to be in optimal condition, considering site factors. Under this alternative, all limiting factors related to grazing would be removed. Direct benefits would result from greatly increased availability of forage and cover for grouse during the spring-summer-fall period. Livestock grazing pressure areas would be eliminated on upland areas, and riparian habitats would be allowed to provide a maximum amount of food and cover for summer-fall periods. Optimal food and cover would be provided on all known blue grouse habitats. Short-term improvements in habitat would be immediate. Long-term improvements would include a net increase in total blue grouse habitat on public lands.

Conclusions—On major identified blue grouse spring-summer-fall habitats, exclusive of custodial tracts, the proposed action, Alternative A, would maintain good condition or substantially improve habitat on 47 percent of allotments with blue grouse habitat. Improvement would result from stock reductions, seasonal deferments, and implementation of rest treatments.

The no action and limited action alternatives would result in essentially identical impacts on blue grouse habitat and would maintain the current situation. Most allotments would remain in a condition below habitat capabilities, so the net result would be a loss in potential blue grouse production from public lands.

The accelerated livestock forage production alternative would be expected to decrease habitat production capabilities to a point well below the present situation, since the condition of 88 percent (117) of all allotments would decline in quality. This would result primarily from sagebrush control measures and heavier livestock use on preferred blue grouse habitats.

Improved wildlife habitat and livestock removal under Alternatives C and F would ultimately result in optimal habitat conditions for blue grouse, with improvement on 90 percent of allotments with blue grouse habitat.

Raptors

Open range lambing practices on the Rock Creek allotment (0512) will produce carrion and attract golden eagles. Periodic eagle depredations on lambs may occur during some years when spring weather is severe or natural prey is scarce. Anticipated complaints from sheep operators will necessitate consideration of continued golden eagle live-trapping on public lands and translocation by the U.S. Fish and Wildlife Service.

No data are available on the survival rates of translocated eagles, but it is possible that some mortality may result. Public interest in seeing and viewing golden eagles is great. Periodic live-trapping may reduce opportunities for public viewing of eagles in the study area.

Waterfowl

Under Alternative A, the proposed action, waterfowl habitat would substantially improve, with eight major habitat areas changing from unsatisfactory to satisfactory condition (see table 3-29). These habitats are primarily in the Centennial Valley, where most of the area's waterfowl use occurs. Total habitat would be 70 percent satisfactory under Alternative A, compared to 41 percent at present (figure 3-12). Reduced livestock levels, implementation of rest-rotation grazing systems, deferred turnout dates, and protective fencing would increase the amount of residual vegetation cover available to waterfowl. Residual cover is important for nest concealment, security cover, and food for all species of waterfowl, and it is especially important to species that begin nesting before spring regrowth (Keith 1961; Mundinger 1975; USDI, BLM 1979a).

Five allotments on Lima Reservoir, the Lima Reservoir (0151), East Munday (0176), Phalarope (0177), Rody (0199), and Price Creek (0040) would have the most waterfowl habitat where residual cover would be substantially improved. Present heavy livestock use of shoreline vegetation is the most significant conflict with waterfowl. Eng, Jones and Gjersing cite numerous studies documenting the fact that most duck breeding pairs occur on grass shorelines, and numbers decline drastically where livestock grazing has eliminated shoreline vegetation (USDI, BLM 1979a). Out of 18 allotments with waterfowl habitat, 11 would show some benefits to waterfowl. All of these allotments are now considered in unsatisfactory condition, and the proposed action would improve 8 of these allotments to satisfactory condition. The remaining 7 allotments are non-AMP allotments and would not be affected by the proposed action. All but one would remain in unsatisfactory condition (table 3-29).

Continued loss of residual cover due to livestock grazing would remain as a major residual adverse impact limiting the quality and quantity of waterfowl habitat; however, the proposed action would substantially improve waterfowl habitat that is now in unsatisfactory condition. The effects of continued early turnout dates, as early as May 1, would result in minor nest trampling and disturbance of waterfowl in most of the allotments (USDI, BLM 1979a; Gjersing 1971; Mundinger 1975; Keith 1961).

Small tracts that provide waterfowl habitat along the Red Rock River in the Centennial Valley would remain under non-AMP management and would be grazed in whatever manner adjacent private lands are grazed. This kind of management does not provide residual cover beneficial to waterfowl, and these areas would remain in unsatisfactory condition because of livestock grazing.

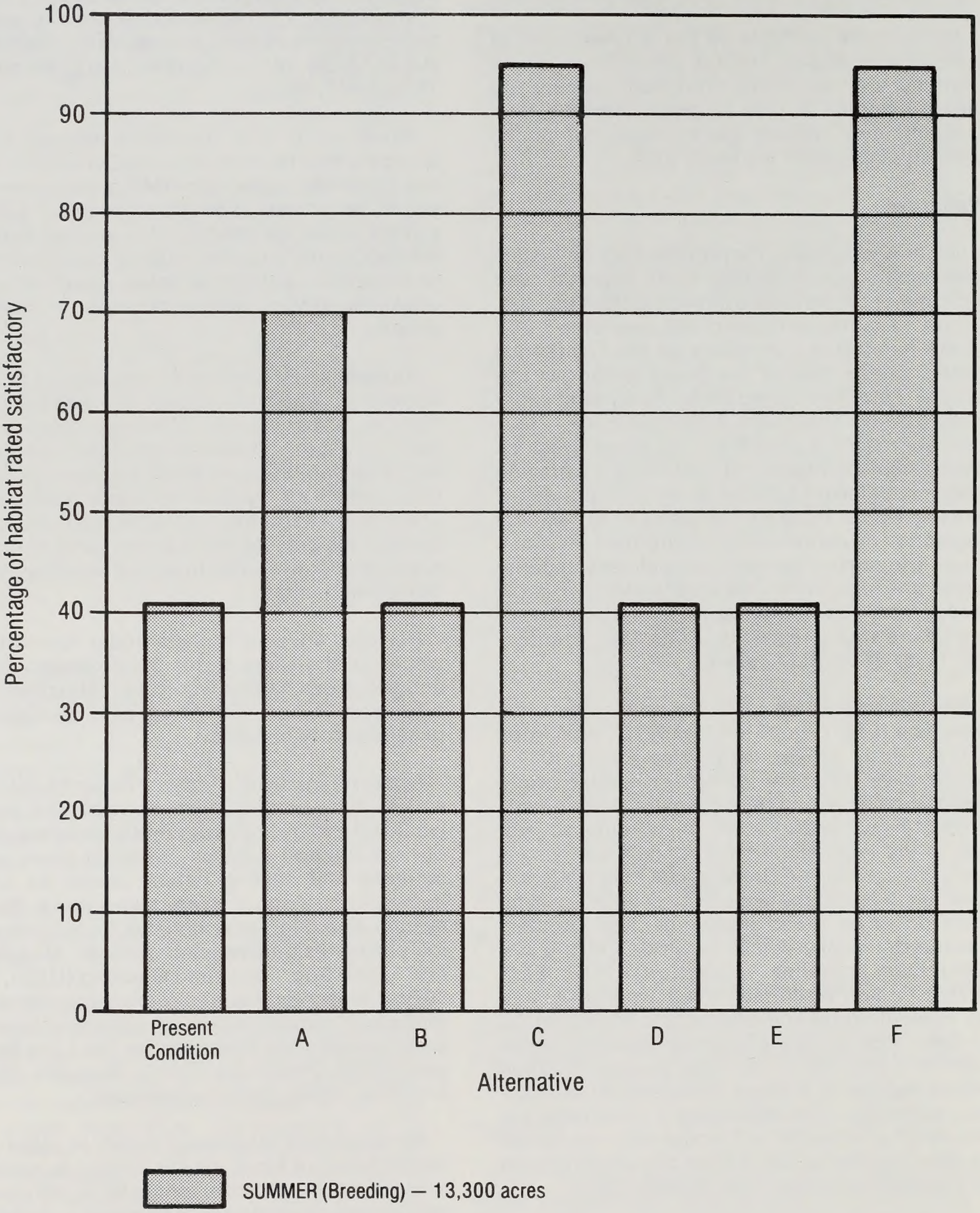
Alternative B, Limited Action, would have no impacts on waterfowl habitat and present conditions would persist, with 41 percent of total waterfowl habitat in satisfactory condition. Seventeen out of 18 habitat areas would remain unsatisfactory (table 3-29; figure 3-12). Since management under this alternative would be restricted to the limits of the present management program, there are no mitigative measures that would enhance waterfowl habitat.

Residual adverse impacts under Alternative B would be the same as for the proposed action, and waterfowl habitat would be maintained in its present condition, with 17 out of 18 allotments in unsatisfactory condition.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, waterfowl habitat quality would be greatly improved by the implementation of rest-rotation systems. Residual cover would increase and nesting habitat would be undisturbed in two out of every three years. Such a system would increase benefits for waterfowl by increasing residual vegetation cover. Mundinger (1975) and Eng, Jones and Gjersing (USDI, BLM 1979a) presented various rest-rotation formulas that would provide maximum waterfowl benefits. Such systems are proposed for the Lima Reservoir (0151), Phalarope (0177), Forsythe (0735), and Price Creek (0040) allotments.

All waterfowl allotments listed in table 3-29 would improve from unsatisfactory to satisfactory condition. Improvement to 90 to 100 percent satisfactory condition would be based on increased amounts of residual cover available and decreased disturbance of waterfowl by livestock (see figure 3-12).

Figure 3-12: IMPACTS ON WATERFOWL HABITAT



SOURCE: BLM, 1979.

TABLE 3-29

IMPACTS IN WATERFOWL HABITAT AREAS

Allot-ment Number	Allotment Name	Current Condition	A: The Proposed Action	B: Limited Action	C: Better Watershed/ Wildlife Values	D: Accelerated Forage Production	E: No Action	F: Eliminate Grazing from Public Lands
			Condition	Condition	Condition	Condition	Condition	Condition
0151	Lima Reservoir	Poor	Good	Poor	Good	Poor	Poor	Good
0177	Phalarope	Poor	Good	Poor	Good	Poor	Poor	Good
0179	Peet-Rock	Poor	Fair	Poor	Good	Poor	Poor	Excellent
0199	Rody	Poor	Good	Poor	Good	Poor	Poor	Good
0522	Wall Creek	Poor	Fair	Poor	Good	Poor	Poor	Good
0708	Fish Creek	Poor	Fair	Poor	Good	Poor	Poor	Good
0735	Forsythe	Poor	Good	Poor	Excellent	Poor	Poor	Excellent
0738	Cocanougher	Poor	Good	Poor	Good	Poor	Poor	Excellent
0153	Matador SGC	Fair	Fair	Fair	Good	Fair	Fair	Excellent
0176	East Munday	Fair	Good	Fair	Good	Fair	Fair	Good
0183	Passmore	Poor	Poor	Poor	Excellent	Poor	Poor	Excellent
0650	Forsythe	Poor	Poor	Poor	Good	Poor	Poor	Good
0707	Stibal	Poor	Poor	Poor	Good	Poor	Poor	Good
0731	G. W. Jones	Poor	Poor	Poor	Good	Poor	Poor	Good
0754	Barrett	Poor	Poor	Poor	Good	Poor	Poor	Good
--	Ennis Lake	Good	Good	Good	Good	Good	Good	Good
--	Ruddy Duck	Fair	Good	Fair	Excellent	Fair	Fair	Excellent
0040	Price Creek	Poor	Good	Poor	Good	Poor	Poor	Good

SOURCE: BLM, 1979.

The most significant improvement of waterfowl habitat would occur on the Lima Reservoir (0151), Phalarope (0177), Peet Rock (0179), Fish Creek (0708), and Forsythe (0735) allotments, all of which are adjacent to Lima Reservoir or the Red Rock River upstream from the reservoir. A total of 2,343 AUMs out of 4,570 AUMs would be allocated to waterfowl on these five allotments, with livestock excluded from 7,093 acres. Livestock would be excluded from the Lima Reservoir (0151) allotment, so that 1,161 AUMs would be available to wildlife and about 3,000 acres would be provided for waterfowl on Lima Reservoir.

Removal of cattle from this area would greatly enhance habitat quality on the main reservoir and several shallow bays to the extent that substantial increases could be expected in waterfowl utilization and production. Shoreline vegetation in the form of willows, rushes, and sedges, as well as emergents such as pondweeds and buckwheats, would be expected to increase without the restricting influences of concentrated livestock grazing and trampling. Habitat condition in this allotment would improve from poor to good (table 3-29). The improvement would greatly benefit molting geese, since this area has been found to be the most important of 18 major molting habitats in the Rocky Mountain region (Krohn and Bizeau 1979).

A realloaction of 604 AUMs for waterfowl (out of 2,145 AUMs) would occur on the Fish Creek (0708) and Forsythe (0735) allotments, with exclusion of livestock from 930 acres along the Red Rock River. Residual cover and duck production in these allotments have been severely restricted by concentrated summer-long grazing with early (May 1 or June 1) turnout dates. Removal of livestock influences from habitat adjacent to the river (potholes, isolated channels, oxbow bends) would significantly improve habitat quality. Habitat condition would improve from poor to good on the Fish Creek (0708) allotment and from poor to excellent on Forsythe (0735), the difference due to the extent of available habitat, adjacent land use, and amount and interspersion of open water within each allotment (table 3-29).

In the Phalarope allotment (0177), a reduction in livestock AUMs from 1,028 to 430, with the difference allocated to waterfowl, would improve habitat conditions by increasing residual cover. This allotment lies on the southwest shoreline of Lima Reservoir, where a reduction in livestock use would be expected to provide improved shoreline vegetation. However, the vegetation response or the benefit to waterfowl would not be as great in this allotment as would be expected in Lima Reservoir (0151), where cattle would be excluded. Habitat quality would improve from poor to good condition. A similar realloaction of 80 out of 236 AUMs for waterfowl on the Peet Rock allotment (0179) along the Red Rock River would improve the amount of residual cover available, and would improve habitat quality from poor to good (table 3-29). On both allotments, the degree of vegetative response would be limited to a small extent by continued livestock grazing and concentration on shoreline habitat.

Because livestock are attracted to mesic areas, especially during hot seasons, shoreline waterfowl habitat and the amount of residual vegetation available would continue to be adversely affected to some extent by any livestock grazing.

Under Alternative D, range developments would not directly affect waterfowl habitat; however, increased stocking levels would have serious impacts on waterfowl habitat. Concentration of livestock around wet areas would increase with higher stocking rates, with resulting loss of residual vegetation cover from grazing and trampling. High stocking rates could effectively eliminate all shoreline vegetation and potentially degrade water quality in small potholes to the extent that submerged vegetation and aquatic insects would be lost. The condition of all waterfowl habitat would be 41 percent satisfactory (figure 3-12).

Under this alternative, major increases in the stocking rates would occur on allotments 0151 and 0177. Both allotments include extensive shoreline areas on both sides of Lima Reservoir, where waterfowl habitat is already in poor condition. Increased stocking rates would continue to concentrate cattle on shoreline habitat and could effectively eliminate remaining waterfowl habitat on the shoreline of Lima Reservoir, greatly decreasing the reservoir's value to molting Canada geese and migrating ducks.

Smaller increases in stocking rates would occur on the Peet Rock (0179), Rody (0199), Wall Creek (0522), and Fish Creek (0708) allotments, with similar adverse impacts on waterfowl habitat. The remaining 12 allotments with waterfowl habitat would not be affected by this alternative and would maintain their present condition. Seventeen allotments would remain in unsatisfactory condition (table 3-29).

The only measures that would mitigate habitat losses for this alternative would be reduced stocking, grazing system changes, and later turnout dates. However, these measures would not be consistent with the goals of the alternative and are not available.

Under Alternative E, No Action, there would be no effect on waterfowl habitat, and present unsatisfactory conditions would persist. There would be very little difference in the effect on waterfowl between this alternative and the limited action alternative.

Under Alternative F, Elimination of Livestock Grazing from Public Lands, removal of influence of livestock grazing would have significantly beneficial impacts on waterfowl habitat on all allotments. Residual cover would increase on all areas, and habitat condition would improve to good or excellent on 90 to 100 percent of habitats, depending on site limitations (table 3-29 and figure 3-12).

Eng, Jones, and Gjersing cited several studies where cessation of livestock grazing served to increase plant density, height, vigor, and species compositions (USDI, BLM 1979a). This would be expected to occur on waterfowl habitat within the study area. However, BLM biologists have noted several areas where, after five to ten years of no livestock grazing, vegetation has become so dense and matted that habitat quality is declining and plant species diversity is decreasing.

Waterfowl habitat would improve to the extent possible within biological and site limitations after the elimination of grazing. The only remaining adverse impacts would relate to extreme plant densities and matting, which could occur five to ten years after the end of grazing. Such impacts could be alleviated by other vegetation control techniques, such as burning. In addition, studies in the midwest United States comparing waterfowl use on fenced reservoirs and ponds with use on unfenced areas have shown that improved cover conditions do not always result in increased waterfowl utilization or production (USDI, BLM 1979a).

The elimination of livestock grazing from public lands would preclude the use of a valuable, practical tool to maintain habitat quality. However, other techniques, such as burning, are available to control vegetation. Therefore, this alternative would not jeopardize long-term management options for waterfowl.

Conclusions—Alternative A would substantially improve waterfowl habitat, with 70 percent considered to be in satisfactory condition (figure 3-12). Implementation of rest-rotation grazing systems to increase available residual cover for waterfowl and protective fencing along Lima Reservoir would be primarily responsible for the improved habitat conditon.

Alternatives B and E would have no substantial effect on waterfowl habitat quality, with 41 percent remaining in satisfactory condition because of lack of residual nesting cover (figure 3-12).

Alternative C would significantly improve habitat because reallocation of livestock AUMs to waterfowl would result in increased residual vegetation cover and decreased disturbance. Approximately 90 to 100 percent of all waterfowl habitat would be in satisfactory condition, compared to 41 percent at present (figure 3-12). This could substantially increase duck and goose production on Lima Reservoir and the Red Rock River, where production at present is negligible or nonexistent. Improved condition on Lima Reservoir would also greatly benefit molting Canada geese.

Alternative D would provide no benefits for waterfowl habitat and would serve to aggravate already poor conditions through increased stocking rates and a corresponding decrease in residual cover. This would have significant adverse impacts on molting geese that use Lima Reservoir. The present habitat quality of 41 percent satisfactory would be maintained with this alternative (figure 3-12).

The elimination of livestock grazing (Alternative F) would remove the major limiting factor on the quality of waterfowl habitat in the short term. Cover conditions would improve significantly, so that 90 to 100 percent of all habitat would be in satisfactory condition (figure 3-12). In the long term, the quality of nesting cover could decline on certain habitat types.

Riparian Habitat

Riparian habitat condition was rated poor, fair, good, and excellent with the use of survey methods and criteria described in Appendix 18. Anticipated condition resulting from the six alternatives was based upon experience gained with 22 existing livestock management plans containing riparian habitat, plus numerous unmanaged allotments grazed in various fashions.

Impacts of livestock grazing upon riparian vegetation are widely acknowledged as being a problem in various symposia (Cope 1979; USDA, FS 1978b; USDA, FS 1977c). However, there is very little agreement on livestock management strategies necessary to maintain or improve riparian habitats. Platts (in Cope 1979) concluded that "rest-rotation grazing, without special protective measures for the stream and streambanks, will not maintain nor restore a healthy, productive riparian-aquatic zone." On the other hand, Raleigh (in Cope 1979) concluded that "we can graze them (streams) and still protect the integrity of the stream and the dependent wildlife and fishery values." Storch (in Cope 1979) concluded that where riparian recovery of an Oregon stream was permitted through complete protection for four years, subsequent annual deferred livestock use did not degrade stream habitat values.

Hormay (1970), an authority on grazing systems, says that "vegetation in certain areas, such as meadows and drainageways, are [sic] invariably closely utilized under any stocking rate or system of grazing. Such use may be detrimental to wildlife, aesthetic or recreational or other values. Where this is the case, about the only way to preserve values is to fence the area off from grazing. Reducing livestock or adjusting the grazing season usually will not solve such a problem."

It is estimated that approximately 1,000 miles of fencing, costing about $2,200,000, would be required to protect major riparian habitats in the study area from stock use. The annual maintenance cost would be about $20,000. Annual entanglement losses to big game would increase by at least 50 percent. As many as 50 to 75 cattleguards, costing $85,000 to $127,500, would be required to facilitate public use on existing roads. The visual impact would be highly adverse because of the contrast between grazed and ungrazed areas. Movement of livestock between management pastures would be extremely difficult. Many existing management fences would have to be moved to create more manageable pasture boundaries. It is obvious that total exclusion of stock is not a practical solution to riparian management.

Experience with 22 existing allotment management plans and numerous non-AMP areas in the study area indicates that riparian management goals can be compatible with livestock grazing, if grazing management is designed to meet riparian needs. In general, grazing systems that provide for more than one year of "hot season" use in three years appear poorly suited to riparian habitat needs. Hot season is defined as the period from July 1 to September 1, though some altitudinal differences occur. During this period, the upland range sites generally provide much less succulent green forage than riparian sites, where water, shade, and relief from insects are also provided.

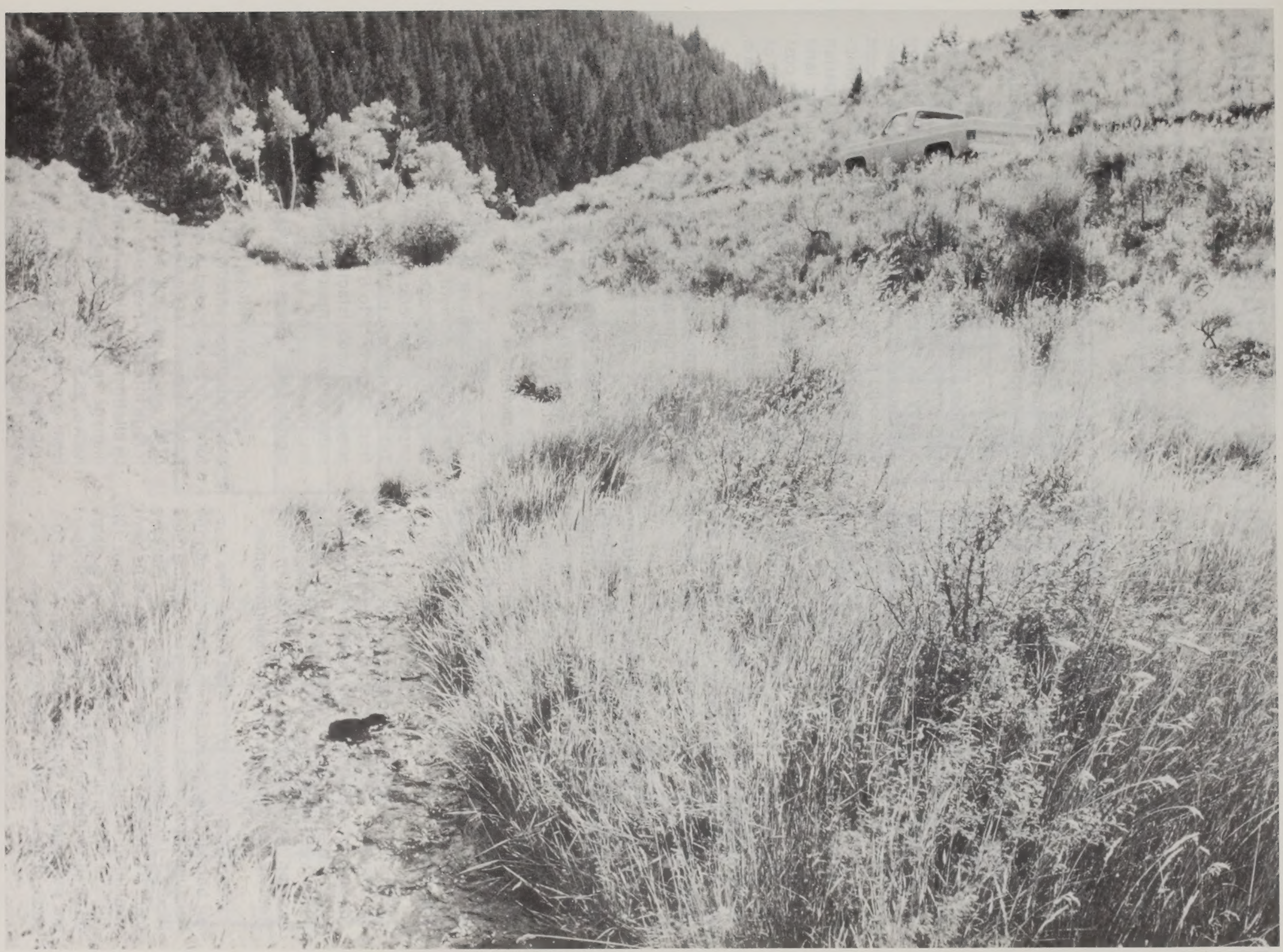
Phenological data collected for the BLM by the University of Montana indicate that most willow flowering and leader growth occurs between June 15 and August 15. By August 25, willow buds are set and are largely dormant, and by this time the carbohydrate reserves in roots and leaders are probably near their peak. Heavy use of willow between June 15 and August 15 probably reduces carbohydrate stores, and eventually the vigor of the plant.

Grazing cattle are generally well dispersed before July 1. In the Dixon Mountain AMP (0022), cattle grazing from November 15 to December 31 appear to disperse well into upland sites, possibly because of severe cold air inversions in the stream bottom. During fall and winter, banks are frozen and are less vulnerable to trampling damage. Drifting snow and ice accumulations also make movements difficult for stock in riparian areas.

Other important considerations in grazing systems with riparian habitats are (1) the natural vulnerability of banks, (2) the amount of riparian habitat in management pastures, (3) the abundance of other shade and water sources, (4) stocking rates, (5) the density of woody species relative to stock movements, (6) topographic slopes near the stream, (7) the class of stock, (8) range condition on upland sites, (9) salting and fencing locations, and (10) the condition of riparian habitat before AMP implementation.

On streams with frail banks, particularly with low rock content or low natural channel stability, any form of livestock grazing may be incompatible. These situations are uncommon in the study area. If riparian habitat is limited in quantity, or if topography is too steep to permit normal stock dispersal, stock use may be incompatible with riparian goals.

Riparian habitats with woody canopies in excess of about 50 to 60 percent are much easier to manage than those with sparse canopies. It has been observed that dense woody canopies greatly reduce stock use of stream bank areas. Yearling cattle and herded sheep have been found to make much less intensive use of riparian areas than cows and calves, and thus are better suited to facilitating riparian recovery. Management fences located close to streams restrict stock dispersal from riparian areas and are not conducive to good riparian management. Salting and alterna-



17. **Good Condition Riparian Habitat on Dyce Creek**

The grazing system on this AMP is designed to meet riparian habitat needs, and willow and other species are increasing.

tive water developments are valuable tools for alleviating concentrated stock use in riparian areas.

Appendix 21 characterizes some existing AMPs that include riparian habitat. Systems that will protect riparian habitat (1) are lightly to moderately stocked, (2) include not more than one "hot season" use in three years, (3) contain ample riparian habitat so as not to create excessive stock concentrations, (4) have fences properly dispersed from streams, and (5) have banks that are not excessively frail. Such systems can generally be designed to maintain good condition riparian habitat or improve poor-fair riparian habitats to good condition. In some situations, several years of rest may be necessary before a system is implemented. Excessive "hot season" stock use on riparian habitats has been shown to reduce woody reproduction, increase dead decadent woody plants, change age-class structure to the point where old (eight to ten years plus) plants dominate, eventually reduce woody canopy as older plants die and are not replaced, and precipitate increased bank erosion and channel damage (figure 3-13).

Alternative A, the Proposed Action, would generally benefit riparian habitat, increasing satisfactory habitat condition from 53 percent to 70 percent (figure 3-14). The 30 percent remaining unsatisfactory would total about 150 miles of stream riparian habitat. Grazing systems on 40 allotments would be inconsistent with riparian management goals (table 3-30). Under this alternative, 25.9 miles of stream would be excluded from grazing, of which 20.1 miles is currently ungrazed.

The only possible mitigative measures would be changes in proposed grazing systems. All adverse impacts would be residual. Proposed short-term use on 40 allotments could greatly curtail long-term productivity of riparian habitats through losses of woody species, loss of bank stability, channel changes, and sedimentation.

Under Alternative B, Limited Action, the riparian habitat impacts would improve very slightly because of proposed reductions in stocking rates (figure 3-14). Satisfactory condition would increase from 53 percent to 56 percent. The 44 percent remaining unsatisfactory would total about 198 miles of stream riparian habitat. Grazing systems on 54 allotments would be inconsistent with riparian management goals (table 3-30). About 20.1 miles of stream would remain ungrazed.

The only possible mitigative measures would be changes in grazing management sufficient to meet riparian goals. All adverse impacts would be residual.

Proposed short-term use on 54 allotments could greatly curtail long-term productivity of riparian habitats through losses of woody species, loss of bank stability, channel changes, and sedimentation.

Under Alternative C, Improved Watershed Values and Wildlife Habitat, the riparian habitat would greatly improve, from 53 percent to 92 percent satisfactory (figure 3-14). Excellent riparian quality would increase from 2 percent to 22 percent (table 3-30). The 8 percent remaining unsatisfactory would total about 36 miles of stream riparian habitat, primarily on seven small public land tracts not practical to fence because of the cost (table 3-30). Under this alternative, 39.2 miles of stream would not be grazed; of which 20.1 miles is ungrazed at present.

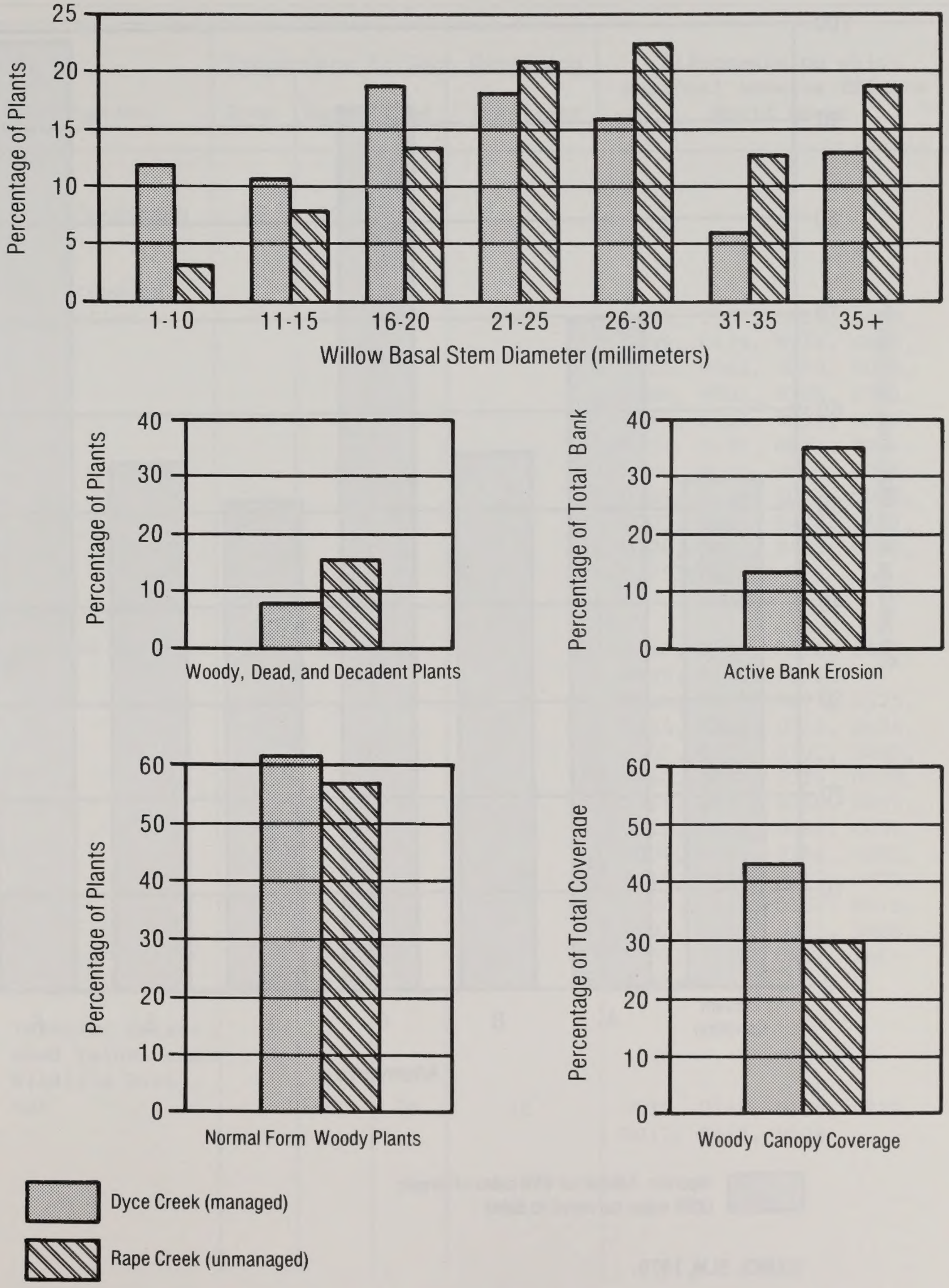
The only possible mitigative measure would be to implement proper management on all tracts, irrespective of cost. All adverse impacts would be residual.

Proposed short-term use on seven allotments could curtail long-term productivity on a minor quantity of stream through losses of woody species, loss of bank stability, channel changes, and sedimentation.

Under Alternative D, Accelerated Livestock Forage Development, the riparian habitat would decline in condition very slightly because of the impacts of accelerated livestock use (Figure 3-14). Satisfactory habitat would decline slightly, from 53 percent to 51 percent. The 49 percent remaining unsatisfactory would total about 221 miles of stream riparian habitat. Gains made in improved grazing systems would be offset by significantly increased stocking rates.

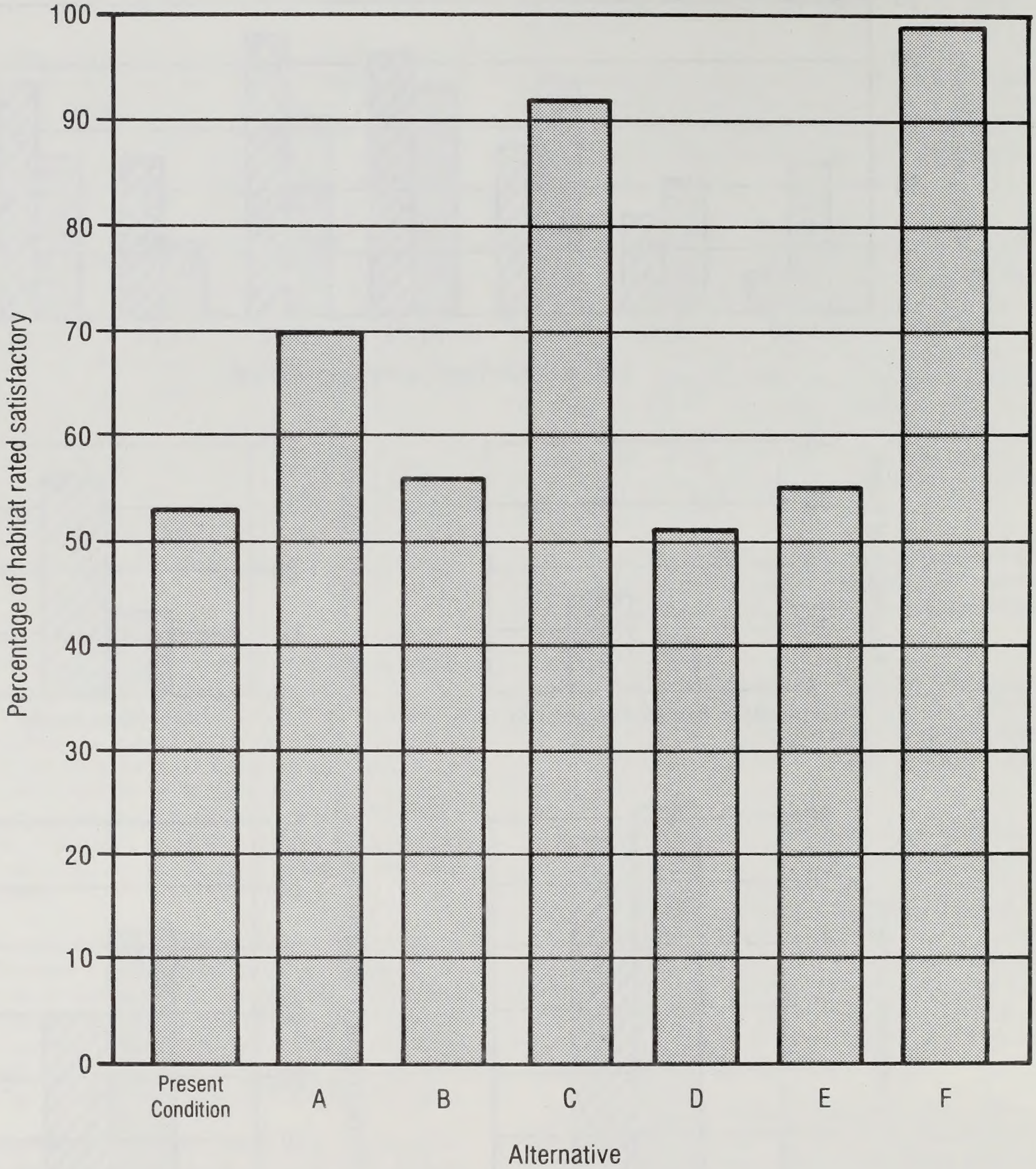
Even though artificial treatments in this alternative would theoretically produce the additional forage to be allocated, it is believed that riparian habitats would receive a disproportionate share of the added use because of the succulence of the forage found in these areas. Grazing systems on 54 allotments would be inconsistent with riparian management goals (table 3-30). Under this alternative, 25.9 miles of stream would be excluded from grazing, 20.1 miles of which is presently ungrazed. The only possible mitigative measures would be changes in proposed grazing systems

Figure 3-13: CHARACTERISTICS OF RIPARIAN HABITATS



SOURCE: BLM, 1979.

Figure 3-14: IMPACTS ON RIPARIAN HABITAT



▨ Riparian habitat on 450 miles of stream
(220 miles surveyed to date)

SOURCE: BLM, 1979.

TABLE 3-30

CURRENT AND ANTICIPATED RIPARIAN HABITAT CONDITION

	Percentage in Each Condition				Allotments on which Residual Adverse Effects Would Occur
Alternative	Poor	Fair	Good	Excellent	
Current Condition	18	29	51	2	
A: The Proposed Action	8	22	60	10	0456, 0507, 0526, 0490, 0499, 0479, 0521, 0498, 0525, 0462, 0040, 0029, 0158, 0001, 0108, 0741, 0119, 0107, 0039, 0126, 0101, 0191, 0031, 0034, 0156, 0020, 0018, 0036, 0145, 0136, 0012, 0002, 0003, 0013, 0428, 0407, 0524, 0457, 0465, 0460, Bufflehead
B: Limited Action	16	28	51	5	0456, 0507, 0526, 0490, 0499, 0479, 0531, 0465, 0469, 0471, 0525, 0305, 0320, 0543, 0454, 0462, 0339, 0730, 0460, 0040, 0154, 0039, 0158, 0741, 0119, 0269, 0039, 0126, 0019, 0191, 0031, 0034, 0016, 0156, 0020, 0018, 0036, 0017, 0522, 0130, 0145, 0137, 0012, 0002, 0003, 0013, 0428, 0407, 0524, 0457, Bufflehead
C: Improved Watershed Values and Wildlife Habitat	2	6	70	22	0039, 0741, 0126, 0019, 0017, 0012, 0428

TABLE 3-30, page 2

Alternative	Percentage in Each Condition				Allotments on which Residual Adverse Effects Would Occur
	Poor	Fair	Good	Excellent	
D: Accelerated Livestock Forage Development	17	32	47	4	0456, 0507, 0490, 0499, 0348, 0531, 0532, 0471, 0498, 0479, 0471, 0525, 0320, 0321, 0462, 0347, 0268, 0730, 0040, 0699, 0700, 0108, 0039, 0158, 0001, 0741, 0108, 0741, 0748, 0749, 0119, 0101, 0269, 0126, 0019, 0191, 0031, 0745, 0034, 0156, 0020, 0018, 0036, 0017, 0145, 0136, 0012, 0002, 0003, 0013, 0270, 0428, 0407, 0524, 0457, 0465, 0460, 0522, Bufflehead
E. No Action	15	30	50	5	0456, 0507, 0490, 0499, 0531, 0532, 0471, 0498, 0469, 0479, 0460, 0525, 0305, 0370, 0321, 0515, 0543, 0454, 0730, 0040, 0154, 0039, 0158, 0001, 0741, 0119, 0101, 0269, 0107, 0126, 0019, 0191, 0031, 0034, 0016, 0156, 0020, 0018, 0036, 0017, 0004, 0130, 0145, 0137, 0012, 0002, 0003, 0013, 0270, 0428, 0407, 0524, 0457, 0465, 0522, Bufflehead
F: Elimination of Livestock Grazing from Public Lands	0	1	42	57	None

SOURCE: BLM, 1979.

and reduced stocking rates. All adverse impacts would be residual.

Proposed short-term use on 54 allotments could greatly curtail long-term productivity of riparian habitats through losses of woody species, loss of bank stability, channel changes, and sedimentation.

Under Alternative E, No Action, the quality of riparian habitat would improve slightly (figure 3-14). Unsatisfactory habitat would decline from 47 percent to 45 percent, representing about 203 miles of stream. The slight improvement would occur on existing AMPs which are designed to improve riparian habitat. Grazing systems on 54 allotments would remain inconsistent with riparian management goals (table 3-30). About 20.1 miles of stream would remain ungrazed, as at present. The only possible mitigative measures would be changes in proposed management and stocking rates. All adverse impacts would be residual.

Proposed short-term use on 54 allotments could greatly curtail long-term productivity of riparian habitats through losses of woody species, loss of bank stability, channel changes, and sedimentation.

Under Alternative F, Elimination of Livestock Grazing from Public Lands, riparian habitat would improve significantly after the impacts of livestock grazing were eliminated (figure 3-14). Satisfactory habitat would increase from 53 percent to 99 percent. Excellent quality habitat would increase from 2 percent to 57 percent (table 3-30). The 1 percent remaining unsatisfactory would be about 4.5 miles of stream riparian habitat on small public land tracts too expensive to fence. Not all riparian habitats were judged to have the potential to become excellent in quality because of upstream watershed problems, frail channels, or low woody vegetation potential. However, all reaches have the potential to become good quality.

Minor residual adverse impacts would occur, since big game would continue to make use of riparian habitats, though not with sufficient intensity to cause unsatisfactory ratings. About 4.5 miles of stream would remain in unsatisfactory condition.

The proposed short-term use would greatly enhance long-term productivity on about 243 miles of stream.

Conclusions—Current riparian habitat condition would remain largely unchanged in the limited action, no action, and accelerated livestock forage development alternatives (B, D, E). This means that 44 percent to 49 percent would remain unsatisfactory (poor and fair), totaling 198 to 221 miles of stream riparian habitat (figure 3-14; table 3-30).

Moderate improvement would be expected in the proposed action (Alternative A), since unsatisfactory habitat (poor and fair) would decline to 30 percent, as opposed to 47 percent at present (figure 3-14). The 30 percent unsatisfactory represents about 150 miles of stream riparian habitat. Grazing systems on 40 allotments would be inconsistent with riparian goals (table 3-30). Good and excellent condition habitats would increase from 51 percent and 2 percent to 60 percent and 10 percent, respectively.

Major improvement would be expected in Alternatives C and F, with unsatisfactory (poor and fair) riparian habitat remaining on only 8 percent and 1 percent, respectively (figure 3-14). Excellent quality habitat would greatly increase, from the present 2 percent to 22 percent in Alternative C, and to 57 percent in Alternative F. Under these alternatives, most riparian habitats would be in nearly optimal condition, contributing to greatly enhanced habitats for fish, nongame species, mountain grouse, moose, deer, and elk.

Common and Widespread Species

The analysis of impacts on common and widespread species is based upon findings in the University of Montana contract (University of Montana [U. of Mont.] 1978a). Rangeland bird populations have evolved in association with large grazing animals, and thus moderate grazing pressure has only slight influence (Wiens 1975). It is probable that the same principles apply to small mammal species also. Environmental heterogeneity on rangelands on a small scale is found to be beneficial for some species (Wiens 1975; U. of Mont. 1978a). Changes in riparian zones appear to be more pronounced compared to open rangelands as the structural habitat components become less complex and total ground cover decreases (Flack 1976; U. of Mont. 1978a).

The final conclusions concerning these shifts of common species must be based upon a judgment of which species are the most valuable or which are desired as indicator species. A rough scale regarding this type of ordination can be assembled according to Flath (MDF&G 1979) and professional opinions of BLM biologists.

Data gathered thus far through contract work indicate that species compositions and densities of common birds and mammals on sagebrush and grassland types are low priority concerns with regard to the proposed actions. Changes in small mammal abundances do occur, but whether these abundance changes warrant a major change in grazing systems is doubtful. It is possible that common nongame species shown in table 2-18 (in chapter 2) are not occurring at optimum densities and diversities. However, complex cause and effect phenomena cannot be analyzed for conclusions with the limited data that are currently available.

Grazing influences on nongame species inhabiting sagebrush and grassland habitat types do not constitute major adverse impacts and cannot be used as rationale for substantially changed management (table 2-18). On the other hand, in riparian habitats, grazing influences that exceed a moderate level are significantly detrimental to the overall nongame fauna. Contracted nongame studies have ultimately supported this conclusion (table 2-18).

In general, a higher biomass productivity seems to be associated with riparian habitats in good condition than that observed on poor condition counterparts. Increases in superabundant species associated with humans, such as American robins and deer mice, impart a lower quality faunal composition on poor condition riparian habitats. Declining habitat quality impairs the natural function of meadow and aspen/willow complexes in supplying habitat for species such as meadow voles and less common passerine birds, so that such species are eliminated and replaced by generalized habitat users that are common and less desired.

In terms of practical range management, nongame species welfare should be considered sufficiently important to play a significant supportive role in changing grazing systems to benefit riparian habitat. For the purpose of analysis, impacts on nongame are considered identical to those on riparian habitat (figure 3-14).

It is assumed that the descriptions of plot condition in table 2-18 likewise apply to the overall health of the nongame that occur there. This analysis is based largely upon the findings of BLM nongame studies in riparian habitats on Rape Creek (poor condition) and Dyce Creek (good condition) and on professional opinion from extensive observations throughout the study area.

Conclusions—The nongame wildlife response to the limited action, accelerated forage development, and no action alternatives (B, D, and E) would be similar; these alternatives could be lumped together and considered the same in their final influence on nongame species. They would each have the effect of maintaining current conditions, with a few minor exceptions. This represents roughly a 50-50 spread of satisfactory and unsatisfactory habitat for common nongame species (poor and fair condition habitats are considered unsatisfactory).

The improved watershed values and wildlife habitat alternative (C) and the alternative to eliminate grazing (F) would likewise be similar in their ultimate influence. Both alternatives would largely optimize nongame habitat and thereby maximize diversity and abundance.

The proposed action represents a substantial increase of at least 20 percent of all riparian habitat in good or excellent condition (figure 3-14). This would be a significant improvement over the present situation.

Threatened and Endangered Terrestrial Wildlife

An informal consultation has been completed with the U.S. Fish and Wildlife Service concerning the proposed action and its impacts on the grizzly bear, the peregrine falcon, the bald eagle, and the northern Rocky Mountain wolf.

There is no evidence to suggest that the proposed action would have any significant impacts on bald eagles. Fall and winter use in the Centennial Valley appears to be related less to grazing than to weather conditions, open winter, and the availability of crippled waterfowl. No formal consultation with the U.S. Fish and Wildlife Service will be necessary with regard to the bald eagle.

The only apparent peregrine falcon use in the resource area occurs in the fall in the Centennial Valley. Scattered observations indicate that only a few peregrines pass through the area; thus, it is doubtful whether overall prey base productivity, which may be affected by grazing use of public lands, has any influence on peregrine falcons. Because of the transient use within the resource area by peregrines, it has been determined that grazing influences under the proposed action and all other alternatives would have a "no effect" impact on peregrine falcons. No formal consultation with the U.S. Fish and Wildlife Service will be necessary with regard to peregrine falcons.

The proposed action would have a "no effect" impact on the grizzly bear. Because of current good quality habitat conditions and the unsuitability of much of the Centennial range for livestock grazing, the "no effect" determination is applicable for all the grazing alternatives. No formal consultation with the U.S. Fish and Wildlife Service will be necessary with regard to the grizzly bear.

Insufficient data are available to evaluate the impacts of proposed grazing systems on the northern Rocky Mountain wolf. Dillon Resource Area biologists are in the process of completing inventory work to close this data gap. In the meantime, the BLM will not make any final management decisions that could affect the wolf.

Conclusions—The peregrine falcon, the bald eagle, and the grizzly bear would not be affected by the proposed action or any of the alternatives. No formal consultation procedures with the U.S. Fish and Wildlife Service will be necessary with regard to these species.

Insufficient data are available to assess the impacts of the proposed action or any of the alternatives on the northern Rocky Mountain wolf. Until sufficient data can be gathered, the BLM will make no management decisions that would affect the wolf.

Aquatic Wildlife

Livestock use has been identified as the single most important factor in the decline of aquatic wildlife values in the West (Smith 1977; USDA, FS 1977a). Armour felt the two primary effects upon fisheries from livestock were trampling of the stream bank and elimination of the streamside vegetation (USDI, BLM 1977b). These primary effects cause secondary problems, which ultimately degrade the aquatic environment. Armour produced a conceptualized flow chart (figure 3-16) to dramatize these actions (USDI, BLM 1977b).

When nongrazed reaches of streams are compared to grazed reaches, fish populations have been reported at least three times greater in the nongrazed sections than in the grazed sections, presumably because of the abundance of herbaceous cover and stable banks (Oregon, Dept. of Fish and Wildlife [ODFW] 1974; Duff 1977; Marcuson 1977; USDA, FS 1977).

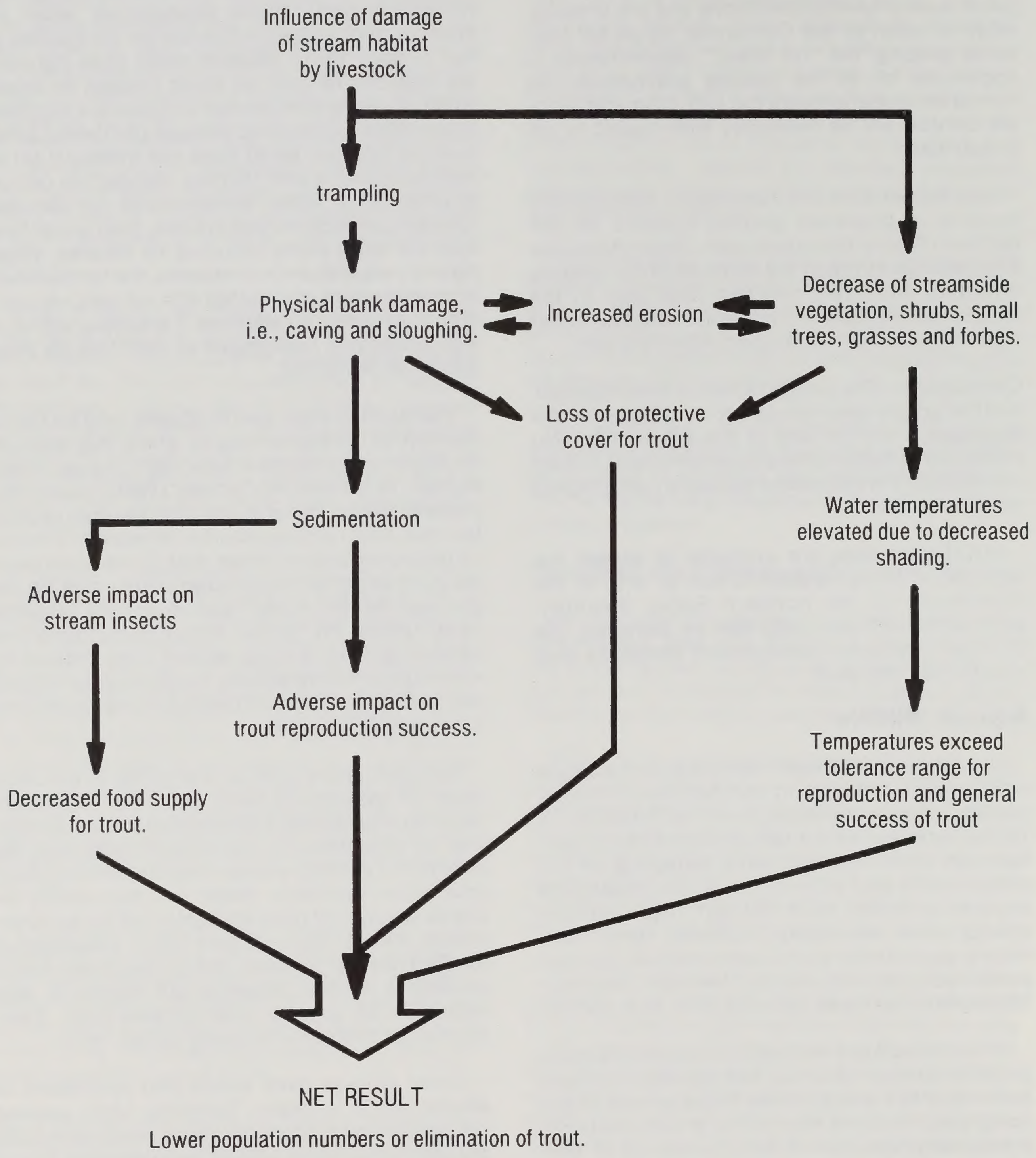
Of the various components to the fisheries ecosystem, the streamside vegetation, or riparian zone, is probably the most important. The riparian zone partially controls the temperature of the water, sedimentation rate, cover, and food for fish (Minckley 1963). Water temperature, when increased, has a direct influence on the species of fish (Lagler 1971). Warmer water does not have the capacity to carry as much oxygen as cooler water. As water temperature increases, a decrease in available oxygen discourages cold water game species. Warmer water does not transport silt as well as cooler water; thereby, deposition occurs (Hynes 1973). When temperatures are elevated for short periods during the day, cold water species are more easily attacked by disease. When riparian vegetation is eliminated, the temperature in small streams associated with rangelands commonly exceeds 80 degrees Farenheit, which is well above that recognized as optimum for trout (USDI, BLM 1977b).

The riparian zone also produces food for fish in the form of terrestrial insects, which may account for 50 percent of some trouts' diet (Cooper 1956). Hynes (1970) and McConnell (1968) found that material falling into streams from riparian vegetation is a major energy source for aquatic insects, an important part of fishes' diet. Cover from overhanging brush and stabilized banks may be the greatest benefit from riparian growth (Boussu 1954; USDA, FS 1972a). It has been found that riparian growth reduces stream bank erosion by slowing current velocities, mechanically holding soil particles, and maintaining moist conditions in the soil (Otis 1974).

Damage, in the form of trampling or breaking down of the stream bank, is also an important factor to maintaining a satisfactory stream. Trampling or sloughing of the stream bank into the stream is a primary cause of sedimentation. Sedimentation adversely affects fish by causing reduced survival of trout embryos and fry by suffocation (Peters 1965; Cooper 1956), reduction of feeding (Bachman 1958), the physical removal of protective mucus, clogged gill filaments, and reduction of aquatic invertebrates (U.S. Environmental Protection Agency [EPA] 1970).

Other studies have found that turbidities in excess of 25 Jackson Turbidity Units caused reduced primary production and resulted in a 600 percent reduction in aquatic invertebrates. Claire and Storch (ODFW 1976) found that in extreme cases of uncontrolled grazing, severe damage to the stream bank occurred, with resultant decreases in the fish population. As vegetation is decreased, stream channel alteration occurs. These changes usually cause the stream to become shallower and wider (Platts 1978). With these conditions the

Figure 3-16: LIVESTOCK DAMAGE TO STREAM HABITAT EFFECTS ON TROUT POPULATIONS.


Influence of damage of stream habitat by livestock
trampling
Physical bank damage, i.e., caving and sloughing.
Increased erosion
Decrease of streamside vegetation, shrubs, small trees, grasses and forbes.
Loss of protective cover for trout
Sedimentation
Water temperatures elevated due to decreased shading.
Adverse impact on stream insects
Adverse impact on trout reproduction success.
Decreased food supply for trout.
Temperatures exceed tolerance range for reproduction and general success of trout
NET RESULT
Lower population numbers or elimination of trout.

SOURCE: U.S. Department of the Interior, Bureau of Land Management, Effects of Deteriorated Range Streams on Trout, by C.L. Armour (Boise, Id.) Idaho State B.L.M. Office.

fish population decreases (Kennedy 1977). Rabe et al. (1976) found in southern Idaho that the few streams that had not undergone severe livestock-caused impacts were usually inaccessible to livestock.

A. The Proposed Action

Impacts to the fisheries and the associated aquatic community from construction of range developments would not be of major significance during the short term (one to four years). It is estimated that about 2,115,700 tons per year of sedimentation would occur on BLM land. This is 14 percent less than the existing situation (table 3-12). Sedimentation would continue to be a problem, but at a reduced level. The addition of water developments in areas not now used by livestock could relieve some grazing pressure along riparian areas.

Intensive management is proposed for 106 allotments that have fisheries habitat. The fisheries potential should be improved in the long term on those allotments, because deferred grazing or periods of rest from livestock grazing would ease grazing pressures.

Increases in livestock numbers or changes in season of use on 53 allotments that have fisheries habitat could significantly decrease the condition of riparian areas. Livestock, no matter the number, would continue to congregate first along riparian areas for shade, water, and vegetation. On those AMPs where fencing of riparian zones is proposed, the riparian zones should improve considerably by the year 2010. Several authors have reported the recovery of willows within 6 to 15 years after total exclusion of livestock (Duff 1977; USDA, FS 1977).

A long-term monitoring program could be established to determine existing condition and trends of the riparian and fisheries habitats. Long-term studies are needed to identify areas that are in a downward trend, so that management could be changed to reverse the trend.

Overuse of riparian areas would continue on an annual basis on 24 non-AMP allotments that have known fisheries resources. Overuse also would occur on 29 existing and proposed AMPs during the years in the grazing plan when a pasture with riparian sites was scheduled to be grazed.

Loss of fisheries habitat can in many cases be considered irretrievable because of the long time required to restore stream banks to productive condition once the soils have been cut to bedrock.

B. Limited Action

This alternative would be similar to Alternative A with the adjustment of livestock use to the proposed grazing management program, but it differs in that no new AMPs would be developed, and only a minimal number of range developments would be implemented. Under Alternative B the riparian zone would continue to decline, and eventually the fish would be adversely affected.

C. Improved Watershed Values and Wildlife Habitat

Alternative C would have positive effects on the aquatic resources. It was designed to maximize the wildlife and fisheries resources; however, it was not designed to eliminate livestock from the range, only to reduce the number to be compatible with wildlife. Impacts generally have been reduced by the use of fencing, the elimination of livestock from areas along streams, and changes in the season of use.

This alternative would decrease the total percentage of poor and fair fisheries habitat to 6 percent (table 3-31). The remainder (94 percent) would be either good or excellent. Sedimentation would be reduced 37 percent, to 1,548,390 tons per year on BLM land (table 3-12). Positive impacts on the riparian habitat would occur on 192 allotments, and only two allotments would continue to suffer adverse impacts.

Alternative C is essentially a conserving alternative, not a consuming alternative; therefore, no fisheries resources would be used, and the resource would not be adversely affected.

D. Accelerated Livestock Forage Development

In addition to the developments proposed in Alternative A, Alternative D would include prescribed burning, sagebrush spraying, and plowing and seeding or interseeding. The additional 30,000 AUMs that would be produced through vegetation manipulation under this alternative would be used by livestock. Increased numbers of livestock seeking water, shade, and succulent vegetation would put additional pressure on riparian zones.

The additional impacts associated with vegetation manipulation are the release of toxic materials into watercourses from spraying, the loss of silt after burning, and the movement of soil by wind, water, or mechanical means into waterways, which results in sedimentation. It is estimated that the sediment yield would be 8 percent less than that in the existing situation (table 3-12).

While these impacts are considered minor, it must be remembered that the possibility for a catastrophe does exist; witness the fish kill on the Beaverhead River near Twin Bridges, Montana, on July 16, 1979. The herbicide killed between 20,000 and 30,000 fish for 5 miles downstream.

If vegetation manipulations were successful, it might be possible to draw some livestock use away from the stream and thereby decrease the negative impact along the streams. However, this would not compensate for the additional pressure due to stocking increases, and eventually sagebrush would return to the treated areas and livestock would return to the stream bank.

The vegetation manipulation would not in itself create any irreversible or irretrievable loss of fish resources. If there were an accident, it would have a short-term effect that could last as long as two to three years. But fish can be restocked, as long as good habitat remains, and fish can migrate back into once-fouled areas that regain proper water quality.

E. No Action

Acceptance of this alternative would perpetuate the already existing impacts. Forty-six percent of the streams in the study area are currently being overused to the extent that they are being adversely affected by the removal of riparian vegetation by livestock. Nearly 50 percent of the fisheries habitat was found to be in good condition at present, while only 5 percent is in excellent condition (table 3-31).

Impacts to the riparian and fisheries habitats from this alternative would be the worst of all the alternatives, and there would be more residual adverse impacts than from any other alternative, since fisheries mitigation would be minimal.

Continual use of delicate and fragile areas along the stream banks would eventually lead to the loss of land productivity through soil loss, habitat loss, and, in the long term, the demise of the stream as an ecosystem.

Fish are considered a renewable resource in that they can be reintroduced into historic habitat either naturally or artificially. However, the habitat that fish use should not be considered renewable. Once a habitat has been degraded, it will not support fish, and many years would pass before the habitat could again support a quality fishery. The continual degradation of the riparian and aquatic habitat is a commitment of resources that could be termed irretrievable within the near future.

F. Elimination of Livestock Grazing from Public Lands

From the fisheries viewpoint, the effects of this alternative are totally positive. The fisheries habitat and riparian condition could be expected to improve greatly, to a point where 100 percent of the streamside vegetation would be in either excellent or good condition (table 3-31). A minor negative impact of this alternative could be the increased destruction allowed by increased numbers of livestock along private reaches of streams not protected by fencing. These disturbances created by increased livestock use could affect downstream sections of BLM-administered land.

Conclusions

Fisheries and fish habitat would benefit most from Alternative F, in which there would be no grazing. The riparian and fish habitat would be expected to improve to its maximum potential, either good or excellent.

The next best alternative would be C, which would increase present wildlife and fisheries values. Figure 3-17 depicts the relative merit of each of the alternatives. Alternative E was picked as the worst case because it would essentially continue the existing poor condition. Alternative A would be an improvement from the existing situation, but it still would not optimize the fisheries potential. Alternative B would be worse than A, because it would not provide for intensive management, improvements for the riparian zone, or range developments. An increase of about 30,000 AUMs would be developed by Alternative D. This would mean cattle numbers would increase, so the use of riparian habitat would increase and fisheries habitat would be reduced. Therefore, Alternative D was rated poorer than the proposed action.

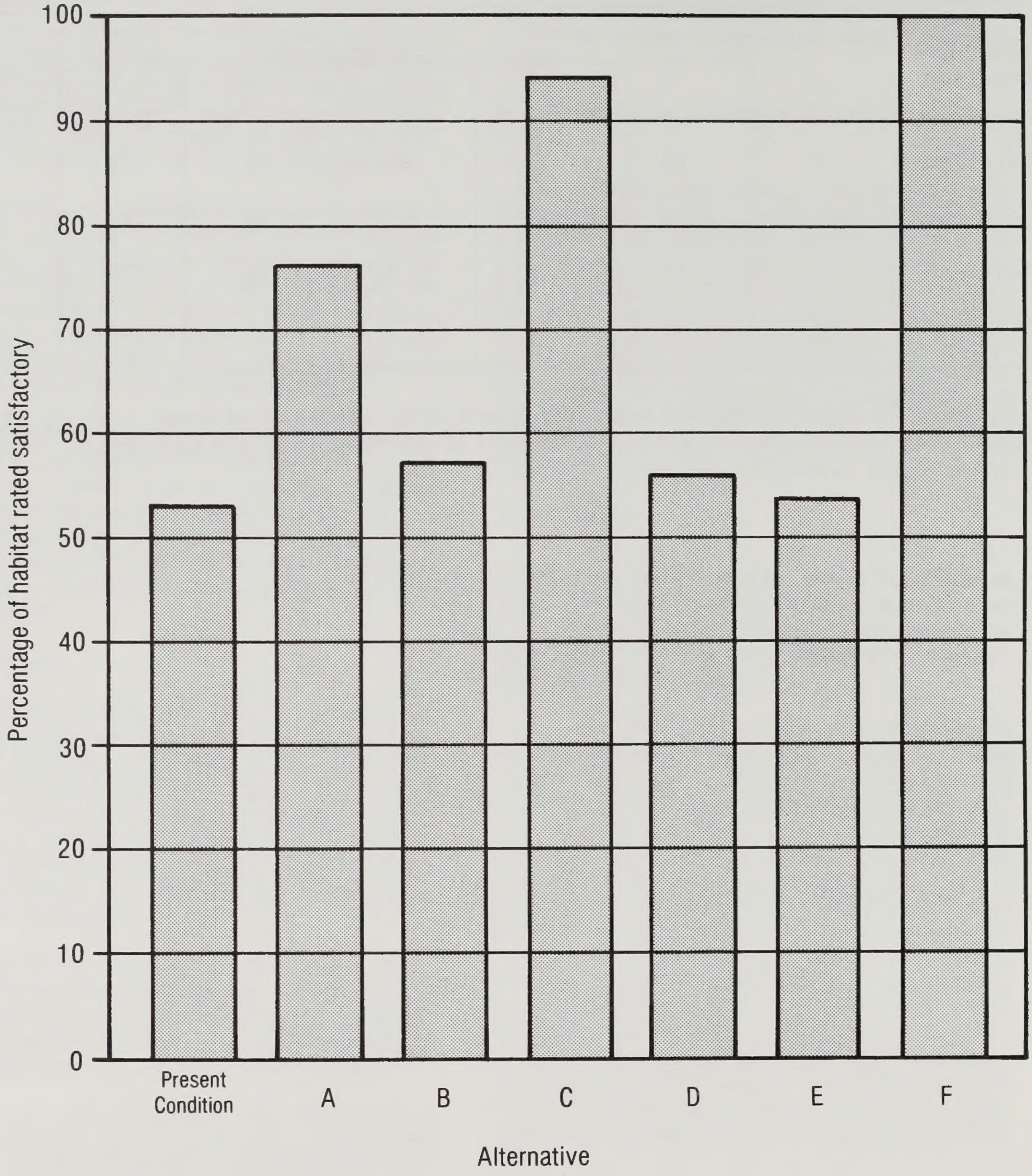
TABLE 3-31

FISHERIES HABITAT CONDITION BY ALTERNATIVE
(in percent)

Existing Condition		Alternative					
		A	B	C	D	E	F
Excellent	5	13	11	27	8	9	61
Good	48	63	46	67	48	45	39
Fair	27	17	24	5	31	28	--
Poor	20	7	19	1	13	18	--

SOURCE: These figures were developed from riparian studies made by the BLM in the Dillon Resource Area and applied to fisheries streams only.

Figure 3-17: IMPACTS ON FISH HABITAT



SOURCE: BLM, 1979.

LAND USES

WILDERNESS

Potential impacts are discussed for the purpose of alternative comparison and to show potential conflicts between the actions and wilderness characteristics; hence, the need for modification to the actions to protect wilderness characteristics. The "Draft Interim Management Policy and Guidelines for Wilderness Study Areas" will provide direction and constraints on potentially disturbing actions prior to the designation/nondesignation of the potential wilderness areas.

Class A range development projects or range management practices (see draft guidelines) allowed during interim management would be considered for implementation in Wilderness Study Areas (WSAs). Class B projects or practices would be evaluated on a case-by-case basis according to each situation, or not allowed until a decision on wilderness was made by Congress. This would ensure the preservation of wilderness values in WSAs.

Wilderness qualities to be considered in evaluating impacts of grazing or developments are (1) generally appears to have been affected primarily by the forces of nature, with the imprint of human work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practical its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical values.

Actions in the grazing program with the potential for affecting these qualities are overauthorization of forage use, fencing (which creates fenceline contrast), livestock congregating along fences, materials and construction methods used, spraying, burning, spring development, salting areas, contour furrowing, plowing and seeding, vehicular access for installation and maintenance, and clearing of vegetation.

Evaluation of impacts and mitigating measures on Instant Study Areas (ISAs) will also be appropriate for WSAs (see the Special Management Areas map in the map supplement). Because of possible boundary changes and uncertainty of final designations for WSAs, specific project proposals are not discussed, except those for ISAs.

A. The Proposed Action

Implementation of this action would result in improved vegetation and soil conditions in the ISAs on allotments scheduled for a reduction in AUMs, so wilderness values would be enhanced. Some allotments are scheduled for an increase in AUMs, with some remaining the same (see table 3-32). Depending on the intensity of grazing brought about by increased AUMs, alteration of wilderness qualities could be expected; however, the degree of impact is not known.

Areas proposed for implementation of AMPs could benefit from management of livestock grazing (see maps 2-2 and 2-3). It is assumed that management would result in improved vegetation condition.

It has been proposed that grazing be eliminated from all or portions of the Sheep Mountain, Tom Creek, and MCCSA non-AMPs. On other non-AMPs (Davis, Feely tracts, and Easter), preservation of scenic values would be emphasized over grazing. Fencing has been recommended for the Long Creek and Jones-Peet proposed AMPs in the Centennial Mountains ISA so that scenic and watershed values would be protected.

Spraying or burning has been recommended for some areas, although ISAs would not be affected under the proposal. Implemented on a large area, either spraying or burning would have a long-lasting detrimental effect on wilderness values, particularly naturalness. Burning, if done on a large scale, could result in the construction of fire lines, which would be detrimental to wilderness values. The composition of the vegetation would change from grass-sagebrush to primarily grass alone, thus adversely affecting the naturalness of the area.

Range developments would be more numerous, with resultant impacts to wilderness. A summary of AMPs by grazing system is provided in table 1-2. Appendix 1 shows data for individual AMPs by grazing system. The Allotment Management Plan map in the map supplement shows existing, revised, and proposed AMPs identified by the allotment number given in Appendix 1. Also shown are non-AMP allotments and unallotted areas.

Fence construction would result in fenceline contrast and in trails created by livestock that would congregate along fences. Spraying, if done by air, would not cause surface disturbance but would leave the stems of sagebrush bare, thus

TABLE 3-32

AUMs IN ISAs BY ALLOTMENT AND ALTERNATIVE

	Alternative					
	A	B	C	D	E	F
AMPs						
Price Creek	405	405	330	475	280	0
Moose Creek	680	680	484	696	680	0
Proposed AMPs						
Redfern	93	93	93	126	386	0
Jones-Peet	231	231	137	1,115	231	0
Long Creek	1,603	1,603	0	3,703	1,603	0
Non-AMPs						
Sheep Mountain	0	0	0	0	0	0
Tom Creek	0	0	0	0	0	0
Morton	18	18	18	18	18	0
Davis	18	18	18	18	24	0
M.C.C.S.A.	0	0	0	0	11	0
Tucker-Feely tracts	40	40	40	40	50	0
Mt. Humbug	15	15	15	15	Unleased--0	0
Easter	177	177	177	177	165	0
Lineberger	23	23	23	23	38	0
Jourdain	13	13	13	13	48	0
Totals	3,316	3,316	1,348	6,419	3,534	

SOURCE: BLM, 1979.

detracting from wilderness qualities. Fencing impacts would be mitigated by locating fences properly and using suitable materials.

Effects of grazing would be monitored, and developments such as fencing, spraying, and burning would be evaluated on a case-by-case basis to determine possible effects and appropriate procedures, in accordance with interim management guidelines for preserving wilderness values. Construction methods, materials used, and location would be important in reducing the impacts of fencing. The size of the affected area and the procedures used would be considered in assessing the impacts from spraying or burning projects.

Major projects that would have long-term detrimental visual impacts, such as contour furrowing, plowing and seeding, and sagebrush spraying, might not be allowed in ISAs and WSAs, in accordance with the interim management guidelines. This would prevent the loss of wilderness characteristics. Such a loss could exclude the area from wilderness consideration.

Construction of permanent roads requiring scraping, blading, or clearing of vegetation would not be allowed in WSAs. A "road" would disqualify an area for possible wilderness designation.

Although grazing and range developments are compatible in wilderness areas, residual adverse impacts to pristine wilderness values would result from the implementation of any proposed range development project found acceptable for placement in a WSA. The magnitude and significance of those impacts on uninventoried areas is unknown; however, they can be identified in the three Instant Study Areas.

If a range development project was removed after a WSA was designated wilderness, there would be no residual adverse impact. Projects acceptable within a designated wilderness would continue to have residual impacts on wilderness values. Range development projects not allowed in a WSA also would have no residual adverse impacts.

The intensity of the residual impacts in a specific WSA would depend on the characteristics of the site. Determination would have to be made on a case-by-case basis in accordance with the interim management guidelines, so that overgeneraization could be avoided.

Short-term uses would result in improved soil and vegetation conditions on areas with a reduction in AUMs. On areas with proposed AUM increases, monitoring would determine if there would be a reduction in wilderness qualities. Vegetation would increase in the long term as range condition improved under management. A decline in available vegetation for wildlife could be expected in areas with increased permitted AUMs. A decline in livestock use in other areas could improve wilderness qualities. Burning or spraying would have detrimental effects on the apparent naturalness of an area, as the elimination of sagebrush would change the vegetation composition to grasses and forbs.

If grazing and range developments were implemented according to interim management guidelines, the resulting residual impact would remain as long as the project remained. If developments were removed, there would be no residual adverse impact. Actual fence locations have not been determined at this time, and planning on a case-by-case basis could determine a location other than in the ISAs. Spraying or controlled burning would change the composition of treated areas from sagebrush to forbs and grasses, which is not a natural occurrence; therefore, wilderness qualities could be reduced.

B. Limited Action

The impacts from implementation of this action would be identical to those of the proposed action for existing and revised AMPs, since the grazing AUMs in ISAs would be the same. Table 3-32 identifies each leased area and indicates the proposed grazing level in the ISAs.

Residual adverse impacts would be the same as for the proposed action. Seasonal grazing or overuse of sensitive areas could result in erosion and vegetation changes that could affect the area's apparent naturalness.

Reduction in grazing would result in improved wilderness quality over the long term. In areas where no changes would be made, the continued use by livestock on a season-long basis would result in disturbance by overuse of the vegetation. This could in turn lead to soil erosion and vegetation changes in both the short term and the long term, and the wilderness quality of the areas would be impaired.

Continuation of the same level of grazing on already overused non-AMPs would ultimately result in soil erosion. Eroded areas would be extremely difficult, if not impossible, to restore to their former condition. Their loss would be irretrievable.

C. Improved Watershed Values and Wildlife Habitat

Impacts from livestock grazing would be fewer than under the proposed action because grazing would be eliminated from some allotments, additional rest periods would be incorporated, stocking levels would be reduced, and no grazing would be permitted before June 15 on some allotments (see Appendix 12). However, slightly more fencing would be required, possibly in locations not ideal for preserving wilderness values.

Benefits derived by providing more forage and habitat for wildlife would enhance wilderness values to the visitor in terms of photography, sightseeing, and hunting opportunities. Areas susceptible to erosion would benefit by protection from grazing and trampling. Both the protection from erosion and the increases in forage would increase the naturalness values.

Livestock grazing would be excluded from some areas in the short term, so more forage would be available for wildlife use. The possible increase in wildlife use would enhance the apparent naturalness and primitiveness of the area and make possible unconfined types of recreation.

In the long term, shorter grazing seasons would make possible more abundant vegetation, providing more forage for wildlife and livestock. The more vigorous vegetation would improve the wilderness qualities of the area. There would be no irreversible or irretrievable commitments of resources with this alternative.

D. Accelerated Livestock Forage Development

Implementation of this alternative would result in the most developments and alterations and in the largest number of grazing livestock on the range. Fenceline contrasts could be greater than with other alternatives because of the increased numbers of livestock.

Sagebrush spraying, prescribed burning, and reseeding would have impacts similar to those described in Alternative A; however, they would be more numerous. Reseeding would require scarification or other mechanical disturbance such as plowing, and other than native species of plants could be introduced.

Wilderness qualities would be impaired by the implementation of the above actions. Developments would have the same impacts as described in Alternative A.

Mechanical and chemical disturbance would be allowed in ISAs only after an environmental assessment had been conducted. Reseeding should be carried out immediately, and only species native to the area should be used.

In the short term, more livestock would be able to use the range, and the indicated range developments would carry this into the long term. More livestock forage would be available in the long term because of the conversion to grass of some areas now inhabitated by sagebrush.

A WSA may contain sagebrush. It is not to the benefit of the wilderness qualities of the WSA to replace sagebrush with grasses. The change in vegetation has a detrimental effect on the naturalness of the area.

E. No Action

Implementation of this alternative would result in a continuing downward trend in areas unsuitable for grazing and in those which are currently being overused. There are no existing AMPs within the Bear Trap Canyon ISA. However, 120 acres of the Easter non-AMP are in the ISA, and range specialists have identified that land as unsuitable for grazing. Steep slopes that are currently being grazed in all ISAs would continue to be damaged by terracing.

One area in the Humbug spires (Redfern), which contains almost four sections, would continue to be a non-AMP under this alternative, as would three other non-AMPs (Feely, MCCSA, and Moose Creek).

The Centennial Mountains ISA contains part of one existing AMP (Price Creek) and six non-AMP allotments (Tom Creek, Sheep Mountain, Jones-Peet, Long Creek, Morton, and Davis).

Sheep Mountain receives no use; therefore, there is no adverse impact from grazing in that area. Areas that are already overused would continue to suffer under this alternative. In other areas, implementation of this alternative would promote soil erosion and reduce wilderness qualities.

Lack of vegetation cover and contouring by livestock trailing on steep hillsides would result in accelerated erosion and loss of wilderness values. Range developments would have residual impacts as identified in Alternative A.

Short-term uses by livestock would cause a continuing downward trend in vegetation production, so that the productivity of the area would be reduced in the long term.

F. Elimination of Livestock Grazing from Public Lands

All impacts from eliminating grazing would enhance wilderness qualities. Impacts from possible fence construction necessary to control trespass would be negative in some areas where fencing was not suitable, and fence construction methods could have negative impacts.

Impacts in the ISAs would be limited primarily to boundaries; thus, wilderness values within the ISAs would be enhanced. Developments on public lands would be removed or, if they were allowed to remain, would cease to be maintained, so the possible impacts from the developments or their maintenance would be significantly reduced.

A determination should be made whether less disturbance would result from removing range developments from ISAs or leaving them in place to deteriorate. Developments left in place would create residual impacts for the duration of their presence, or until they became camouflaged by vegetation.

There would be no irreversible or irretrievable commitments of resources under this alternative.

Conclusions

Wilderness values would be enhanced through improved vegetation condition on the existing, revised, and proposed AMP allotments if Alternative A, C, D, or F were implemented. Impacts from proposed developments would vary according to type and number. Alternatives A and D would have similar impacts on wilderness values, except that there would be more spraying and burning under Alternative D. Retention of wilderness qualities would be greatest with Alternative F.

Alternatives B and E would result in deterioration of wilderness qualities because range condition would deteriorate.

RECREATION

Major Recreation Values and Impacts

Recreation use in the study area is primarily related to hunting and fishing activities, which are nationally important. Camping, picnicking, hiking, sightseeing, and most other activities that would be influenced by the proposed action or alternatives are either incidental to or in support of fishing and hunting. The following are the major impacts on existing and future recreation opportunities from livestock grazing and related facilities:

> Modification of fish and game habitat, and the resultant impact to recreation opportunities due to changes in fish and game populations.
>
> Conflicts between recreation users and grazing interests that arise when cattle grazing and recreation activities occur simultaneously within confined areas such as stream corridors.
>
> Recreation access and safety problems created by the construction of new fencing.

In order to meet increased public demand for fishing and hunting activities in the future, fish and game populations must be significantly increased. Realization of the population increases required will depend to a large extent on whether a grazing alternative maintains the quality of habitat required; that is, adequate forage allocations and security cover for big game, sufficient nesting habitat for upland game and waterfowl, and maintenance of stream bank condition and vegetation required for fisheries habitat.

Quite often big game and sage grouse that winter on BLM-managed public lands will be on state, private, and national forest lands during the hunting season. Thus, any population reductions due to winter range conditions could adversely affect hunting opportunities on other public and private lands.

Most use conflicts between recreation and grazing activities occur near or in concentrated use areas, and primarily in undeveloped recreation areas along major fishing streams during the summer-fall recreation season. Most adverse impacts occur when large numbers of livestock are attracted to these areas by available shade, lush vegetation, the availability of water, and cooler temperatures. The result of such heavy, concentrated livestock grazing is a loss of the natural character that recreationists prefer. Consequent soil exposure and erosion often result in a severe deterioration of an area's natural qualities. Campers and bank fishermen are particularly affected by animal waste, associated unpleasant odors, and annoying insects. Heavily hedged woody riparian vegetation reduces secnic values associated with the recreation experience and is ineffective in screening visual intrusions from river floaters. The total effect is a reduction in the quality of the recreation opportunity and experience.

Grazing alternatives that substantially increase the amount of new fence construction add more barriers to cross-country off-road vehicle (ORV) travel. This has an especially adverse effect on hunting, fishing, and snowmobile activities. There is also an increased possibility of injury to snowmobile operators from fences obscured by snow cover.

The degree to which any alternative affects scenic (aesthetic) values must be considered for public lands and for special management areas either located on or bordered by BLM-administered lands. Maintenance of scenic values is related to the quality of recreation experiences, including the public's stated preference for primitive or natural experiences. The effects of the proposed action and alternatives on scenic values in the study area are discussed in the "Scenic Values" section of this chapter.

Analysis Methodology and Assumptions

The following assumptions and methodology have been used to analyze the effects of the grazing alternatives in regard to the three major factors in the quality of recreation opportunities.

Fishing and Hunting Opportunities

It has been assumed that a direct correlation exists among habitat conditions, fish and game populations, and hunting or fishing opportunities. All fish and game habitats in the study area have the potential to attain at least good or satisfactory condition. The analysis of impacts on all hunting and fishing opportunities, with the exception of elk hunting, has been based on the major habitat component that limits such opportunities. Impacts on both spring habitats and summer-fall habitats were considered in the analysis of elk hunting opportunities.

It also has been assumed that any impact of winter range conditions on hunting opportunities on BLM-managed lands would have the same type, but not necessarily the same degree, of impact on hunting opportunities on private and other public lands.

Figure 3-18 illustrates the procedure used to correlate habitat condition and fish and wildlife populations with the quality of hunting or fishing opportunities. The procedure is based on the premise that if a grazing alternative reduced habitat quality, fish or game populations would be reduced, and the quality of fishing or hunting opportunities also would be reduced accordingly. The actual population levels of fish and game are obviously affected by a host of other factors such as disease, predation, weather, and population cycles. This analysis, however, concentrates solely on how the various grazing alternatives would affect habitat conditions and the resultant impact on population levels, a major component in determining the quality and quantity of recreation opportunities.

Definitions for hunting or fishing opportunity rating terms used in figure 3-18 are provided in table 3-33.

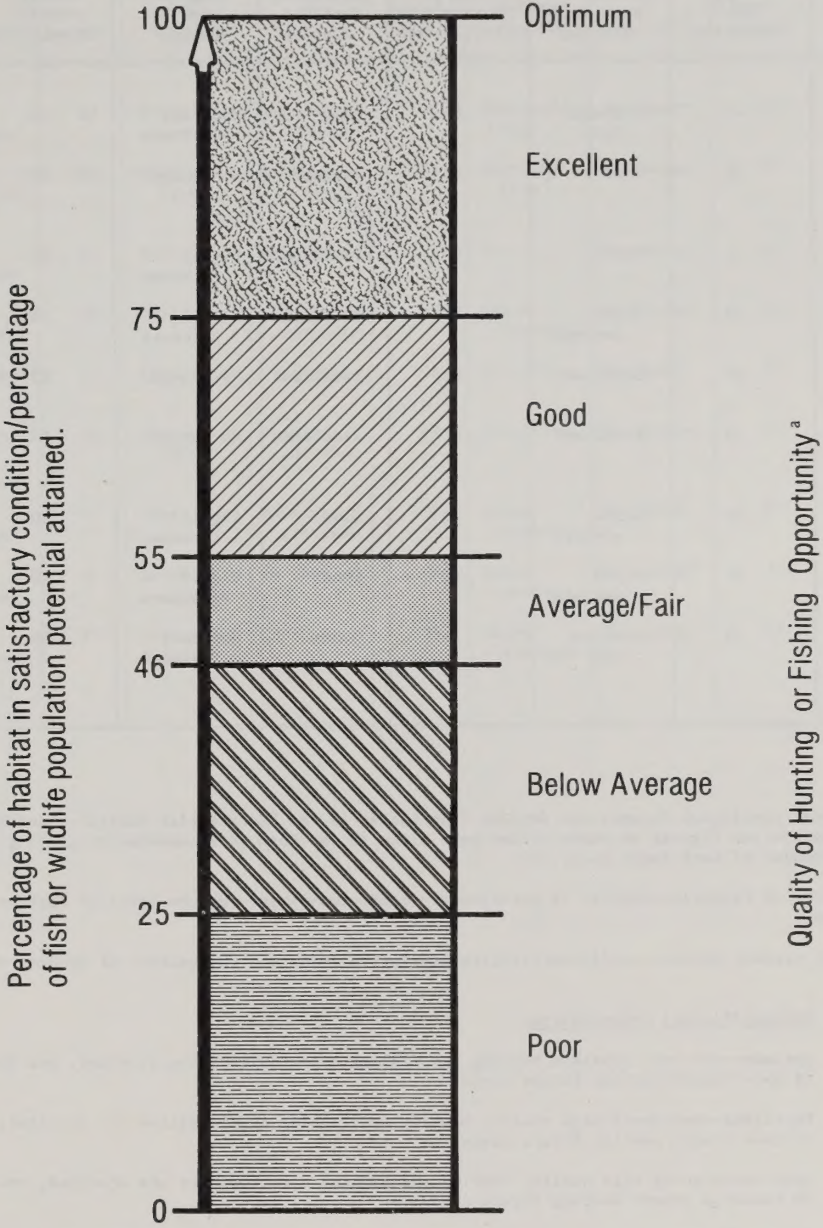
Use Conflicts

The degree to which conflicts occur depends on the number of cattle concentrated within recreation areas. A basic assumption of this analysis is that an increased livestock forage allocation would result in increased livestock numbers and therefore in increased concentrations of livestock. Thus, use conflicts would be most intense under grazing alternatives that propose substantial forage allocation increases to livestock and relatively less intense for alternatives with lower livestock forage allocations. The intent of this analysis is to consider the cumulative impact of each grazing alternative in regard to livestock numbers and concentrations, rather than to discuss impacts on a site-by-site basis.

Recreation Access and User Safety

Grazing alternatives were evaluated on the total amount of new fence construction proposed. For example, a significant increase in fence construction is described as an adverse impact, while a minor increase is characterized as an insignificant barrier or a safety hazard to cross-country travel.

Figure 3-18: EFFECT OF HABITAT ON HUNTING AND FISHING OPPORTUNITIES



SOURCE: BLM, 1979.

[a] Definitions of rating terms are provided in table 3-32.

TABLE 3-33

IMPACTS OF ALTERNATIVES ON THE QUALITY OF HUNTING AND FISHING OPPORTUNITIES

	Existing Situation		A: Proposed Grazing Management Program			B: Limited Action		
Kind of Hunting/Fishing	Habitat Condition[a]/ Population	Quality of Hunting/ Fishing[b]	Habitat Condition[a]/ Population	Quality of Hunting/ Fishing[b]	Degree of Change[c]	Habitat Condition[a]/ Population	Quality of Hunting/ Fishing[b]	Degree of Change[c]
Elk								
Winter/spring	47	Average/ fair	65	Good	Moderate increase	55	Average/ fair	Slight increase
Summer/fall	56	Good	55	Average/ fair	No change	55	Average/ fair	No change
Mule deer								
Winter/spring	21	Poor	80	Excellent	Signif. increase	20	Poor	No change
Antelope								
Summer/fall	29	Below average	80	Excellent	Signif. increase	30	Below average	No change
Moose	90	Excellent	93	Excellent	No change	93	Excellent	No change
Bighorn sheep	98	Excellent	97	Excellent	No change	97	Excellent	No change
Sage Grouse								
Breeding	28	Below average	70	Good	Signif. increase	30	Below average	No change
Waterfowl	41	Below average	70	Good	Signif. increase	40	Below average	No change
Sport Fishing	53	Average/ fair	70	Good	Moderate increase	56	Good	No change

SOURCE: BLM, 1979.

NOTE: Data in habitat/population columns are derived from tables in the "Terrestrial Wildlife" and "Aquatic Wildlife" sections of chapter 3; however, population figures in those tables were given in the form of a numbered range (e.g., 75-85). They have been converted here to the midpoint of each range (e.g., 80).

a. Index of wildlife or fisheries habitat in satisfactory condition--index for the level of fish or wildlife population attained is assumed to be the same.

b. The relationship between habitat condition/wildlife population index and the quality of hunting or fishing opportunities is as follows:

Index	Hunting/Fishing Opportunities
100	Optimum--the best possible hunting and fishing opportunities are provided, and the maximum contribution is made toward meeting future needs.
76-99	Excellent--extremely high quality hunting and fishing opportunities are provided, and a major contribution is made toward meeting future needs.
56-75	Good--moderately high quality hunting and fishing opportunities are provided, and important assistance is rendered toward meeting future needs.
46-55	Average/fair--average to slightly above average hunting and fishing opportunities are provided; little, if any, contributions are made toward meeting future needs.
26-45	Below average--low quality hunting and fishing opportunities are provided, and no contribution is made toward meeting future needs.
0-25	Poor--extremely low quality hunting and fishing opportunities are provided, and the habitat condition/ fish or wildlife population level is a major deterrent to meeting future needs.

c. Key to degree of change:

Index Change	Degree of Change
26 or more points	Significant increase
11 to 25 points	Moderate increase
6 to 10 points	Slight increase
- 5 to + 5 points	No change
- 6 to - 10 points	Slight decrease
- 11 to - 25 points	Moderate decrease
- 26 points	Significant decrease

C: Improved Waterhed Values and Wildlife Habitat			D: Accelerated Forage Development			E: No Action			F: Eliminate Livestock Grazing		
Habitat Condition[a]/ Population	Quality of Hunting/ Fishing[b]	Degree of Change[c]	Habitat Condition[a] Population	Quality of Hunting/ Fishing[b]	Degree of Change[c]	Habitat Condition[a]/ Population	Quality of Hunting/ Fishing[b]	Degree of Change[c]	Habitat Condition[a]/ Population	Quality of Hunting/ Fishing[b]	Degree of Change[c]
90	Excellent	Signif. increase	30	Below average	Moderate decrease	50	Average/ fair	No change	95	Excellent	Signif. increase
75	Good	Moderate increase	55	Average/ fair	No change	55	Average/ fair	No change	95	Excellent	Signif. increase
77	Excellent	Signif. increase	25	Poor	No change	20	Poor	No change	85	Excellent	Signif. increase
90	Excellent	Signif. increase	70	Good	Signif. increase	30	Below average	No change	95	Excellent	Signif. increase
97	Excellent	No change	93	Excellent	No change	93	Excellent	No change	97	Excellent	Slight increase
97	Excellent	No change	50	Average/ fair	Signif. decrease	97	Excellent	No change	97	Excellent	No change
85	Excellent	Signif. increase	12	Poor	Moderate decrease	30	Below average	No change	97	Excellent	Signif. increase
95	Excellent	Signif. increase	40	Below average	No change	40	Below average	No change	95	Excellent	Signif. increase
92	Excellent	Signif. increase	51	Average/ fair	No change	55	Below average	No change	99	Excellent	Signif. increase

A. The Proposed Action

The initial reduction of 22,625 AUMs would reduce livestock-recreation conflicts moderately over the short term. However, the long-term projected stocking rate of 141,897 AUMs would moderately increase conflicts. With this 16,520-AUM increase over the existing stocking rate, livestock would be more likely to concentrate in the vicinity of streams, rivers, and lakes, where most recreation occurs. The problem of concentrated livestock in heavy recreational use areas would lead to use problems and could lead to the avoidance of affected areas by certain recreationists.

Construction of the proposed 192.6 miles of new fence would moderately affect recreational access and snowmobile user safety. Recreationists would have to expend additional time and effort in seeking access around fences or opening gates.

Elk hunting opportunities would increase moderately from the present average/fair quality to good, except for the summer-fall elk ranges in the Ruby Mountains and Blacktail Ridge areas. In those areas livestock competition would slightly decrease elk hunting opportunities, as described in the section on terrestrial wildlife in chapter 3. The inadequacy of summer-fall habitats would cause elk hunting opportunities in these areas to remain poor to below average. Moose and bighorn sheep hunting opportunities would remain excellent.

The most significant improvement in big game hunting opportunities would be for mule deer and antelope. The increased mule deer population realized from improved habitat condition, particularly on winter ranges, would significantly increase deer hunting opportunities from the present poor rating to excellent. The increased antelope population resulting from improved summer-fall habitats would significantly increase antelope hunting opportunities from below average to excellent.

Sage grouse hunting opportunities would significantly increase from below average to good, and waterfowl hunting opportunities would increase to a "good" rating. The improved riparian habitat condition, particularly along small streams, would moderately increase sport fishing opportunities from average/fair to good.

Major contributions would be made toward meeting future hunting needs for moose, for bighorn sheep, and especially for mule deer. Sage grouse hunting and fishing opportunities would be improved less, yet the improvement expected would help to provide for future needs. Adverse impacts on summer-fall elk habitat would mean the overall contribution for meeting future hunting needs for this species would be moderate. Important assistance would be provided toward meeting future antelope or waterfowl hunting needs. See table 3-33 for a summary of the residual impacts of all grazing alternatives on the quality of hunting and fishing opportunities.

As a result of vegetation manipulation, short-term elimination of sage grouse habitat identified in the terrestrial wildlife portion of this chapter would eliminate some hunting opportunities. However, the eventual reestablishment of sage grouse habitat in these areas would produce good hunting opportunities in the long term. No irreversible or irretrievable commitments of resources were identified.

B. Limited Action

The initial reduction of 22,625 AUMs would reduce livestock-recreation conflicts moderately over the short term, and the long-term stocking rate of 118,787 AUMs would result in a slight long-term decrease in conflicts. Even with this 6,590-AUM reduction from the existing stocking rate, livestock would still be expected to concentrate near streams, rivers, and lakes where recreation use occurs. However, the actual decrease in numbers and possible resource improvement would decrease conflicts and improve recreational opportunities slightly.

Construction of 16.55 miles of fence would affect recreation access and snowmobile user safety very little, if any, in comparison with the existing situation.

Elk hunting opportunities would increase slightly in some areas because there would be minimal improvement in elk habitat, particularly on winter ranges. On the other hand, elk hunting opportunities would decrease slightly in the Ruby Mountains and Blacktail Ridge areas where summer-fall habitat would be unsatisfactory.

Opportunities to hunt moose and bighorn sheep would remain excellent, but deer hunting opportunities would continue to be poor. Antelope hunting opportunities would continue to be below average.

Opportunities to hunt waterfowl and sage grouse would remain below average, and slightly improved fishing opportunities would be rated as good. Minimal contribution, if any, would be made toward meeting other future hunting and fishing needs, with the exception of bighorn sheep and moose hunting (see table 3-33).

No issues regarding short-term uses versus long-term productivity were identified, nor were any irreversible and irretrievable commitments of resources noted.

C. Improved Watershed Values and Wildlife Habitat

Measures designed to resolve use conflicts between livestock grazing and recreation activities, or to enhance recreation oportunities at specific recreation areas, are included as components of Alternative C (see Appendix 12). These measures, as well as the wildlife proposals within this alternative, would result in the provision of recreation opportunities at the following levels of quality (see table 3-33).

Hunting and fishing opportunities for all reported fish and wildlife species would increase to excellent. The improved fish and wildlife habitat to be realized from the recommended livestock management program would improve recreational opportunities, so that major contributions would be made toward meeting future needs. Long-term optimal hunting and fishing opportunities would be assured (see table 3-33).

The stocking rate of 74,785 AUMs and the grazing exclusions in specific areas would substantially reduce existing livestock-recreation conflicts in dispersed recreation areas, as well as in heavily used areas.

Construction of the additional 299.7 miles of fence proposed under this alternative would result in moderate adverse impacts to recreation access opportunities and snowmobile user safety. In some instances, recreationists would have to make a determined effort in seeking access across public lands to preferred recreation areas. However, the overall increase in the quality of hunting and fishing opportunities provided by a reduction in livestock numbers would more than offset the related access problem.

The short-term degradation of browse species by large deer numbers, as discussed in the terrestrial wildlife section of this chapter, would reduce hunting opportunities, but eventual habitat improvement would produce excellent hunting opportunities in the long term.

No issues regarding irreversible and irretrievable commitments of resources were identified.

D. Accelerated Livestock Forage Development

The initial reduction of 14,627 AUMs would reduce livestock-recreation conflicts moderately over the short term, but the long-term stocking rate of 162,774 AUMs would produce intense conflicts. With this 37,397-AUM increase over the existing stocking rate, large numbers of livestock would be expected to concentrate in the vicinity of streams, rivers, and lakes where heavy recreation use occurs. The problems of concentrated livestock in heavy recreation use areas, as described in the general discussion, would intensify to such a degree that some recreationists would no longer visit affected areas.

Construction of the additional 192.6 miles of fence would result in moderate adverse effects on recreational access opportunities and snowmobile user safety. Recreationists would have to spend more time and effort in seeking access through fences and opening gates.

The quality of hunting and fishing opportunities for all species except moose and antelope would continue at their present levels or decrease. Moose hunting opportunities would remain excellent, and the improved antelope habitat would significantly improve antelope hunting opportunities to a quality rating of good.

Elk hunting opportunities would decrease moderately from average to below average. Deer hunting opportunities would continue poor, and bighorn sheep hunting opportunities would significantly decrease from excellent to average/fair. Sport fishing opportunities would continue average/fair, and waterfowl hunting opportunities would remain below average.

Provision for future needs would be virtually eliminated by this proposal. In fact, implementation of this grazing alternative would be a major deterrent in meeting future needs for hunting and fishing opportunities. In some instances, hunting and fishing opportunities would drop significantly from the existing level in the future (see table 3-33).

The short-term impact resulting from sagebrush control and from plowing and seeding on

81,368 acres of public land would impair sage grouse, deer, and antelope productivity, as described in the terrestrial wildlife section of this chapter. The resultant short-term decrease in the quality of hunting opportunities for these species would be highly significant. The eventual long-term reestablishment of sagebrush habitats would still result in deer and sage grouse hunting opportunities remaining at the poor level. Opportunities to hunt antelope would eventually improve, but only to their present below average quality.

The analysis surfaced no issues regarding irreversible or irretrievable commitments of resources.

E. No Action

Implementation of this proposal would lead to a continuation of the existing livestock-recreation conflicts and to an eventual deterioration of the present situation, so that some recreationists might pursue their activities elsewhere.

No improvement in hunting and fishing opportunities could be expected. The quality of elk hunting opportunities would remain average/fair, and deer hunting opportunities, poor. Antelope and sage grouse hunting opportunities, as well as sport fishing opportunities, would be rated below average. Moose and bighorn sheep hunting opportunities would remain excellent. Major contributions would be made toward meeting future moose and bighorn sheep hunting needs (see table 3-33). With the exception of moose and bighorn, this alternative would provide no contribution, and in some instances would be a deterrent, to providing for future hunting and fishing needs.

No issues regarding short-term uses versus long-term productivity or irreversible and irretrievable commitments of resources were identified.

F. Elimination of Livestock Grazing from Public Lands

Removal of all livestock from public land would result in excellent hunting and fishing opportunities for all fish and wildlife species. A major contribution toward meeting future hunting and fishing needs would be realized (see table 3-33), and future conflicts between livestock and recreationists on public lands would be virtually eliminated.

Potential construction of the 2,700 miles of fence identified as a "worst case" need would significantly affect current recreational use patterns. Recreationists would no longer have unobstructed access to public lands. Significant safety hazards to snowmobilers would occur. A real possibility exists that many of the private access routes to public lands that are now available for public use would substantially decline, until legal public access was provided to these areas. Conflicts between landowners and recreationists during the interim period would be intense. In addition, the necessity of seeking routes around fences or through gates would require an excessive expenditure of time and effort that would normally be spent in the pursuit of recreational activities.

No issues of short-term versus long-term productivity were identified, nor were any irreversible or irretrievable commitments of resources noted.

Conclusions

Implementation of Alternative A, the proposed action, would result in significant improvement in hunting opportunities for waterfowl. Few, if any, contributions would be made toward meeting future needs for waterfowl hunting. Good elk hunting opportunities would result, except in the Blacktail Ridge and Ruby Mountains areas, where hunting opportunities would continue to rate poor because of unsatisfactory summer-fall habitat. Overall, moderate contributions would be made toward providing for future elk hunting needs. Good to excellent quality opportunities, as well as significant contributions toward meeting future needs, would be provided for other hunting and fishing activities. Moderate use conflicts and snowmobile safety problems would occur.

Sage grouse, waterfowl, and big game hunting opportunities, with the exception of moose and bighorn sheep, would vary from average to poor with implementation of Alternative B, and no contribution would be made toward meeting future needs. Good to excellent moose and bighorn sheep hunting and sport fishing opportunities would be provided, and significant contributions rendered in meeting future needs for these activities. Some reduction in use conflicts would result, and hazards to snowmobile users' safety would be minimal.

Alternatives C and F would result in excellent hunting and fishing opportunities, and would make major contributions toward providing for future needs. Use conflicts would be substantially resolved at specific recreation areas under

Alternative C and eliminated under Alternative F. Access and snowmobile user safety problems would increase somewhat under Alternative C and significantly under Alternative F. However, the net benefits to hunting and fishing opportunities provided by Alternative C would more than offset the problems associated with such conflicts.

Implementation of Alternatives D and E would result in similar impacts to hunting and fishing opportunities, with the exception of bighorn sheep and antelope. Both alternatives would provide excellent moose hunting opportunities and major contributions toward meeting future needs. Alternative E would also provide excellent opportunities and yield major contributions for meeting future bighorn sheep hunting needs, and Alternative D would provide good opportunities for antelope hunting.

The absence of any improvement in other fish and wildlife habitats, and in some instances the degradation of these habitats, would result in average to poor hunting and fishing opportunities for these species. In addition, no contribution would be provided toward meeting future hunting and fishing needs. A moderate increase in safety hazards would occur for Alternative D; there would be no additional safety hazards under Alternative E. Over the long term, use conflicts would significantly increase under Alternative D, and they would eventually worsen under Alternative E.

SCENIC VALUES

As stated in chapter 1, all grazing projects shall be so located and designed as to meet the objectives of Visual Resource Management (VRM) classes. It has been established through general contrast ratings that no project should result in visual impacts in the long term; however, each project must be evaluated on an individual, site-specific basis to ensure conformance to the management objectives.

Contrast ratings measure the visibility of a change to a landscape. It is based on the fact that if an irregularity within the landscape cannot be discerned from its background, or is similar to the background to the extent that it is not noticeable, it is irrelevant whether that irregularity has positive or negative scenic values.

As indicated in chapter 2, subtle or undetectable changes in the landscape due to grazing activities cannot be measured through contrast ratings, but can represent an improvement or reduction of scenic values. In such instances, an observer's evaluation of an area's scenic value is based on an immediate impression, rather than a comparison of the aesthetic values that would exist if the area were in a more or less natural condition. For example, when grazing intensity approaches an area's grazing capacity, trampling creates more muddy areas, vegetation becomes more sparse and hedged, dust blows, and the land appears more desolate. The reaction to this type of landscape is assumed to be negative. A landscape with lush growth that appears to be natural, regardless of the subtle changes due to grazing, is assumed to elicit either a positive response or no aesthetic response. With this as a scale of scenic values, the alternatives have been evaluated as follows:

	Exist. Sit.	**Alt. A**	**Alt. B**	**Alt. C**	**Alt. D**	**Alt. E**	**Alt. F**
Riparian areas	-	0	-	+	-	-	+
Upland/foothills areas	0	0	0	+	-	0	+
Mountain/forested areas	+	+	+	+	0	+	+

+ = Attractive and natural appearing
0 = Average, neither repellent nor attractive—acceptable
- = Disturbance to natural appearance ranges from minor to obvious

It must be understood that the above is a subjective evaluation based on professional judgment. Further, the evaluation was based on an analysis of the cumulative impacts of each grazing alternative on each of the three types of landscapes in the study area.

Because the only means of reducing this impact is the reduction of grazing intensity or the nonutilization of forage, mitigation would be the reduction of animal unit months. Changes in animal unit months are represented by the alternatives themselves; therefore, no mitigation is proposed.

CULTURAL RESOURCES

The environmental consequences of livestock grazing in the proposed action or in any of the alternative actions are difficult, if not impossible, to identify. Neither the archaeological nor the management literature provides any supportable documentation of the effects of livestock grazing on cultural resources. Artifact breakage and displacement has been suggested as an effect of livestock trampling; however, there are no data to support or refute this suggestion. Cultural re-

TABLE 3-34

CULTURAL RESOURCES SITES AFFECTED BY RANGE DEVELOPMENTS

Alternative	Number of Acres Disturbed	Potential Number of Sites Affected
A: The Proposed Action	9,648	19
B: Limited Action	1,511	3
C: Improved Watershed Values and Wildlife Habitat	14,168	28
D: Accelerated Livestock Forage Production	69,805	140
E: No Action	0	0
F: Elimination of Livestock Grazing from Public Lands	2,700	5

SOURCE: BLM, 1979.

sources would be affected, however, when the effects of range management and the location of a cultural resource coincide.

The informational potential of cultural resources can be adversely affected by any action that would necessitate the removal or redistribution of significant amounts of soil, such as during the construction of range developments. Because the integrity of these resources depends on the preservation of the objects and features used by humans and the preservation of their context (position relative to one another), any soil disturbance could destroy this arrangement and make the site meaningless. Paradoxically, it is the removal of soil (through erosion or disturbance) that allows for the discovery of some of the most important cultural resources. Also, increased vegetation and stabilized or aggrading conditions could hide sites and remove them from possible study.

On the basis of the general estimate of 1,929 sites (chapter 2), a density of 0.002 sites per acre can be derived. If this statistic accurately reflects site density, between 0 and 140 sites could be affected by construction of range developments (see table 3-34).

Adverse impacts from range developments can generally be avoided through project design. However, it is unlikely that the proposed action or any alternative would avoid all the cultural resources in the study area. Therefore, it is possible that some impacts would occur (see table 3-34).

Appendix 5 details the procedures to be used to inventory areas disturbed by range developments and describes the evaluation and consultation to be done with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) to mitigate impacts that are unavoidable.

Inventory and assessment of cultural resources directly affected by range developments would provide immediate gains in scientific knowledge of the area and a data base for long-term gains. Long-term loss of scientific data could occur if an inventory did not discover a site that was subsequently destroyed during construction. Also, in cases where salvage mitigation is required, the techniques used to collect information would generally destroy the future potential of the resource. Cultural resources are nonrenewable, and once they are used or destroyed, they are not available for future use.

National Register of Historic Places

The single site in the study area that is listed on the National Register of Historic Places, which is also partially on public land, is Bannack. It would not be affected by range developments planned in the proposed action or any of the alternatives.

Conclusions

As stated above, the proposed action or any alternative could have both beneficial and adverse effects on cultural resources. The accelerated livestock forage development alternative would have the greatest direct impact on cultural resources because of the greater acreage of ground disturbance.

The other alternatives have both drawbacks and benefits. Generally, the lower the acreage of ground disturbance, the fewer the direct impacts on cultural resources. However, the improved watershed values and wildlife habitat alternative (C) and the proposed action (A) would to some extent increase ground cover and reduce erosion. Both of these alternatives could be beneficial if livestock trampling was proved to affect cultural resources. Gains in scientific knowledge of the area should occur. Salvage excavation or inadvertent destruction of sites would be irretrievable resource commitments, because no further information beyond what was collected before destruction could be obtained in the future.

Adverse impacts would be irreversible and would result in the permanent loss of some of the information potential of the study area; however, there are no known measures beyond those of the proposed action that would mitigate the adverse impacts.

LIVESTOCK GRAZING

Current livestock grazing practices (normal operation) would be affected significantly or minimally, depending upon the alternative considered. Deviations from current grazing practices are measured by the following: stocking level, AUMs harvested by livestock, season of use, and grazing systems. The discussion of reinvasion rates under "Sagebrush" in the "Vegetation" section of chapter 2 would apply to the proposed range developments. It is assumed that within 10 to 15 years after the initial sagebrush control treatment, a follow-up treatment would be necessary. The following discussion of alternatives quantifies these variables and formulates a conclusion for impacts on livestock grazing.

Impacts on operators caused by the necessity of moving livestock from one pasture to another within a grazing system are not quantifiable. It is assumed that rest-rotation and deferred rotation grazing systems would require the most operator time to follow the rotation sequence, because those systems require an average of two to three moves. See table 3-35 for a comparison of grazing systems among alternatives.

Until livestock become accustomed to the grazing system, the short-term impact could be a reduced level of livestock production. However, this short-term impact should be mitigated over the long term, and the original livestock production level should be exceeded when forage production is improved through use of the grazing system. Livestock production studies could be conducted on selected allotments to measure the short-term and long-term impacts imposed by the new grazing management systems.

Because operator impacts imposed by the various grazing systems are relative, they are not discussed in the alternative analysis; rather, they are addressed in the "Conclusions" section.

While public land is unavailable for grazing during rest or deferment following land treatment, it is assumed that the necessary grazing would be furnished by nonfederal lands. This temporary loss of AUMs would be a short-term impact, and the loss could be restored in approximately two years after land treatment.

Forage developments for the proposed action and the alternatives are shown in table 1-8, chapter 1. The primary difference among alternatives is the number of acres proposed for vegetation manipulation.

A. The Proposed Action

The proposed grazing management program would initially adjust the AUMs of permitted use on 365 allotments, for a net decrease of 15,344 AUMs. This adjustment would result from an increase of 7,281 AUMs on 114 allotments, a decrease of 22,625 AUMs on 251 allotments, and no change on 153 allotments. Appendix 13 shows these initial adjustments by allotment, and table 3-36 gives a summary of the adjustments for the study area. This reduction would be short-term, while the 25-year projection would result in an increase of 31,864 AUMs from the initial level and 16,520 AUMs above the current permitted use.

The proposed grazing management program would make the following adjustments on current grazing use: 26 existing AMPs would continue their current systems, 22 existing AMPs would be revised, AMPs would be implemented on 138 existing non-AMP allotments, the present non-AMP status would continue on 281 allotments, and no forage would be allocated to livestock on 51 unallotted areas.

Major changes in season of use would occur earlier (in the "pre-boot" growth stage of the key species) and later (in the post-seed shatter growth stage) compared to the current authorized seasons. Early use within the proposed grazing management program would be reduced on 186 AMP allotments by 100 months and increased on 281 non-AMP allotments by 128 months. The net effect on 467 allotments would be an accumulated increase of 27 months of grazing (see table 3-37).

Late use would be reduced on 186 AMP allotments by 53 months and increased on 281 non-AMP allotments by 110 months. The net effect on 467 allotments would be an accumulated increase of 57 months of grazing. Livestock grazing would be excluded in 51 areas for an accumulated decrease of 49 months of grazing. Operators would have to find alternate sources of livestock forage during the proposed season of use adjustments.

These reductions are not total losses; rather, they are mostly shifting of AUMs to different timeframes. While these changes in use would adversely affect normal livestock operations in the short term (see table 3-37), most impacts would be beneficial on the same operations over the long term in the form of better quality and quantity of livestock forage (see the "Range Condition" section of this chapter).

Short-term unavoidable impacts from the loss of forage production on 9,414 acres of prescribed burning, sagebrush spraying, and plowing and/or seeding would occur. Within two to three years, the land should be producing more forage than before treatment, and in several years it would have more than compensated for the lost productivity. Although reinvasion of sagebrush might occur, monitoring of changes in species composition would allow adjustments in management or follow-up treatment to regulate the balance in species composition.

Long-term unavoidable impacts would occur on about 234 acres. These acres would be per-

TABLE 3-35

CHANGES IN NUMBER OF GRAZING MANAGEMENT SYSTEMS BY ALTERNATIVE

Existing Situation		Change in Proposed Grazing Management[a]					
Existing Grazing Systems/ (number of systems)		Alternative[b]					
		A	B	C	D	E	F
Rest-rotation	(26)	+ 85	+ 10	+106	+ 85	0	- 26
Deferred	(1)	+ 19	- 1	+ 11	+ 19	0	- 1
Deferred rotation	(3)	+ 27	0	+ 11	+ 27	0	- 3
Alternate rest	(13)	+ 11	- 4	+ 14	+ 11	0	- 13
Short-duration/high intensity	(0)	+ 1	0	+ 1	+ 1	0	0
Seasonal	(361)[c]	- 80	+ 58	-127	- 80	0	-361
Unallotted	(157)	-106	-106	- 59	-106	0	-157
TOTAL ALLOTMENTS	(561)	518	518	518	518	561	561

SOURCE: BLM, 1979.

[a] The figures shown represent the number of grazing systems proposed compared to existing situation. Change in number of grazing systems is shown by "+" (increase), "-" (decrease) and "0" (no change).

[b] A = Proposed Grazing Management Program; B = Limited Action; C = Improved Watershed Values and Wildlife Habitat; D = Accelerated Livestock Forage Development; E = no action; and F = Eliminate Livestock Grazing from Public Lands.

[c] Five of these 361 allotments are existing AMPs that have a seasonal grazing system.

TABLE 3-36

SUMMARY OF NET CHANGE IN AUMs BY ALTERNATIVE

	Proposed Action		Alternative B		Alternative C		Alternative D		Alternative E		Alternative F	
	Number of Allot-ments	Number of AUMs	Number of Allot-ments	Number of AUMs	Number of Allot-ments	Number of AUMs	Number of Allot-ments	Number of AUMs	Number of Allot-ments	Number of AUMs	Number of Allot-ments	Number of AUMs
Existing AMPS												
Increase	7	2,627	7	2,627	1	50	24	10,661	0	0	0	0
Decrease	7	557	7	557	18	5,972	2	356	0	0	26	24,434
No change	12	0	12	0	5	0	0	0	48	0	0	0
Total allotments	26	26,504	26	26,504	24	17,445	26	34,739	48	44,287	26	24,434
Net change	0	+ 2,070	0	+ 2,070	0	+ 5,922	0	+10,305	0	0	0	-24,434
Revised AMPs												
Increase	6	1,205	6	1,205	2	728	12	6,607	0	0	0	0
Decrease	12	3,112	12	3,112	20	7,685	10	2,013	0	0	22	19,853
No change	4	0	4	0	0	0	0	0	0	0	0	0
Total allotments	22	17,946	22	17,946	22	12,896	22	24,447	0	0	22	19,853
Net change	0	- 1,907	0	- 1,907	0	- 6,957	0	+ 4,594	0	0	0	-19,853
Proposed AMPs												
Increase	0	0	0	0	6	153	81	31,307	0	0	0	0
Decrease	78	12,542	0	0	117	26,471	57	5,844	0	0	138	61,664
No change	60	0	0	0	17	0	0	0	0	0	0	0
Total allotments	138	49,122	0	0	140	31,923	138	87,127	0	0	138	61,664
Net change	0	-12,542	0	0	0	-26,318	0	+25,463	0	0	0	-61,664
Non-AMPs												
Increase	101	3,449	101	3,449	88	2,807	99	3,449	0	0	0	0
Decrease	143	6,143	221	18,685	112	6,800	146	6,143	0	0	281	19,155
No change	37	0	97	0	34	0	36	0	356	0	0	0
Total allotments	281	16,461	419	65,583	234	12,521	281	16,461	356	80,819	281	19,155
Net change	0	- 2,694	0	-15,236	0	- 3,993	0	- 2,694	0	0	0	-19,155
Unalloted Areas												
Increase	0	0	0	0	0	0	0	0	0	0	0	0
Decrease	11	271	11	271	58	7,402	11	271	0	0	51	271
No change	40	0	40	0	40	0	40	0	157	0	0	0
Total allotments	51	0	51	0	98	0	51	0	157	271	51	271
Net change	0	-271	0	-271	0	-7,402	0	-271	0	0	0	-271
EIS Study Area Total												
Increase	114	7,281	114	7,281	97	3,738	216	52,024	0	0	0	0
Decrease	251	22,625	251	22,625	325	54,330	226	14,627	0	0	518	125,377
No change	153	0	153	0	96	0	76	0	561	0	0	0
Total allotments	518	110,033	518	110,033	518	74,785	518	162,774	561	125,377	518	125,377
Net change	0	-15,344	0	-15,344	0	-50,592	0	+37,397	0	0	0	-125,377

SOURCE: BLM, 1979.

NOTE: The change in AUMs is computed by comparing the proposed stocking level by alternative to the current permitted use. The average actual use is used for comparison on existing and revised AMPs.

TABLE 3-37

CHANGE IN CURRENT SEASON OF USE BY ALTERNATIVE AND PROPOSED MANAGEMENT STATUS

	A: Proposed Grazing Management Program						B: Limited Action					
	Existing	Revised	Proposed	Non-AMPs	Unallotted Areas	Total	Existing	Revised	Proposed	Non-AMPs	Unallotted Areas	Total
Early Use[a]												
Increase in Early Use												
Number of allotments	0	2	24	107	0	133	0	2	0	107	0	109
Number of months	0	+ 1.33	+ 24.92	+327.56	0	+353.81	0	+ 1.33	0	+327.56	0	+328.89
Decrease in Early Use												
Number of allotments	0	8	77	101	0	186	0	8	0	101	0	109
Number of months	0	-12.29	-114.35	-199.77	0	-326.41	0	-12.29	0	-199.77	0	-212.06
No Change in Early Use												
Number of allotments	26	12	37	73	0	148	26	12	138	73	0	243
Net Change in Early Use												
Number of allotments	26	22	138	281	0	467	26	22	138	281	0	467
Number of Months	0	-10.96	- 89.43	+127.79	0	+ 27.40	0	-10.96	0	+127.79	0	+116.83
Late Use[a]												
Increase in Late Use												
Number of allotments	0	4	48	116	0	168	0	4	0	116	0	120
Number of months	0	+ 8.80	+ 44.56	+247.90	0	+301.26	0	+ 8.80	0	+247.90	0	+256.70
Decrease in Late Use												
Number of allotments	0	6	60	76	0	142	0	6	0	76	0	82
Number of months	0	- 7.85	- 98.39	-138.27	0	-244.51	0	- 7.85	0	-138.27	0	-146.12
No Change in Late Use												
Number of allotments	26	12	30	89	0	157	26	12	138	89	0	265
Net Change in Late Use												
Number of allotments	26	22	138	281	0	467	26	22	138	281	0	467
Number of months	0	+ 0.95	- 53.83	+109.63	0	+ 56.75	0	+ 0.95	0	+109.63	0	+110.58
Exclude Grazing												
Number of allotments	0	0	0	0	51	51	0	0	0	0	51	51
Number of months	0	0	0	0	-49.23	-49.23	0	0	0	0	-49.23	- 49.23
Net Change in Use												
Number of allotments	0	0	0	0	51	51	0	0	0	0	51	51
Number of months	0	0	0	0	-49.23	-49.23	0	0	0	0	-49.23	-49.23

SOURCE: BLM, 1979.

NOTE: Alternative E, No Action, is not shown because there would be no change from the current situation under this alternative. Alternative F, Elimination of Livestock Grazing from Public lands, is not shown because grazing seasons would be eliminated under this alternative.

a. Early use is considered to be grazing that occurs in the pre-boot stage of the vegetation species; late use is considered to be grazing that occurs in the post-seed shatter stage of the vegetation species.

C: Improved Watershed Values and Wildlife Habitat						D: Accelerated Livestock Forage Development					
Existing	Revised	Proposed	Non-AMPs	Unallotted Areas	Total	Existing	Revised	Proposed	Non-AMPs	Unallotted Areas	Total
0 0	2 + 0.36	24 +36.3	92 +240.98	0 0	118 +277.64	0 0	2 + 1.33	24 + 24.92	107 +327.56	0 0	133 +353.81
5 - 5.83	12 -12.13	76 -108.13	83 -171.11	0 0	176 -297.20	0 0	8 -12.29	77 -114.35	101 -199.77	0 0	186 -326.41
19	8	40	59	0	126	26	12	37	73	0	148
24 - 5.83	22 -11.77	140 - 71.83	234 + 69.87	0 0	420 + 19.56	26 0	22 -10.96	138 - 89.43	281 +127.79	0 0	467 + 27.40
2 + 2	8 +11.95	47 + 50.03	95 +201.92	0 0	152 +265.90	0 0	4 + 8.80	48 + 44.56	116 +247.90	0 0	168 +301.26
3 - 6.60	8 -10.70	59 -109.16	62 -127.48	0 0	132 -253.94	0 0	6 - 7.85	60 - 98.39	76 -138.27	0 0	142 -244.51
19	6	34	77	0	136	26	12	30	89	0	157
24 - 4.66	22 + 1.25	140 - 59.13	234 + 74.44	0 0	420 + 11.90	26 0	22 + 0.95	138 - 53.83	281 +109.63	0 0	467 + 56.75
2 - 2.66	0 0	13 - 52.50	32 -153.05	51 -49.23	98 -257.39	0 0	0 0	0 0	0 0	51 -49.23	51 - 49.23
2 - 2.66	0 0	13 - 53.50	32 -153.05	51 -49.23	98 -257.39	0 0	0 0	0 0	0 0	51 -49.23	51 - 49.23

manently removed for the life of the project where range developments such as wells, springs, stock tanks, and other water developments are proposed. These impacts would be insignificant when offset by benefits derived from improved distribution of livestock grazing.

The proposed action is flexible. All AMPs have provisions for revision and update. Monitoring of AMPs through resource studies provides a basis for revisions and/or adjustments.

Table 3-38 indicates that 195 allotments would be reduced by more than 30 percent in comparison with their current permitted use. This category of reduction is most prevalent in proposed AMP and non-AMP allotments, as reduction by this percentage is proposed on 49 and 95 allotments, respectively. No irreversible or irretrievable commitment of resources would result from the proposed action or from any of the alternatives.

B. Limited Action

The limited action alternative would initially adjust the AUMs of permitted use on 365 allotments for a net decrease of 15,344 AUMs. This adjustment would result from an increase of 7,281 AUMs on 114 allotments, a decrease of 22,625 AUMs on 251 allotments, and no change on 153 allotments. Appendix 13 shows these initial (short-term) adjustments by allotment, and table 3-36 gives a summary of the adjustments for the study area.

The long-term change under this alternative would be an increase of 8,754 AUMs from the initial level and 6,590 AUMs below the current permitted use. These 25-year AUM projections for Alternative B (shown in table 1-9 in chapter 1) were derived from the section of Appendix 1 that deals with existing and revised AMPs for Alternative A.

This alternative would make the following adjustments on current grazing use: 26 existing AMPs would continue their current grazing system, 22 existing AMPs would be revised to accommodate the resource needs, the current permitted use on the remaining 470 non-AMP allotments and unallotted areas would be adjusted to the surveyed capacity, and the existing season of use would be changed to the proposed season of use on AMP allotments only.

Major changes in season of use would occur earlier (in the "pre-boot" growth stage of the key species) and later (in the post-seed shatter growth stage) compared to the current authorized seasons. Early use would be decreased on 48 AMP allotments by 11 months and increased on 419 non-AMP allotments by 128 months. The net effect on 467 allotments would be an accumulated increase of 117 months of grazing (see table 3-37). Late use would be increased on 48 AMP allotments by 1 month and increased on 419 non-AMP allotments by 110 months. The net effect on 467 allotments would be an accumulated increase of 111 months of grazing.

Livestock grazing would be excluded on 51 areas, for an accumulated decrease of 49 months of grazing. Operators would have to find alternate sources of livestock forage during the proposed season of use adjustments. These impacts are discussed in the "Economics" section of this chapter.

This alternative has the same initial stocking level as Alternative A. The primary difference is that the 25-year projected increase of livestock forage would be considerably less than that of Alternative A (see figure 3-20).

Short-term unavoidable impacts from the loss of forage production on 660 acres of prescribed burning would occur. Within two to three years, the land should be producing more forage than before treatment, and in several years it could have more than compensated for the loss of short-term productivity.

Long-term unavoidable impacts would occur on about 4 acres. These acres would be permanently removed for the life of the project where range developments such as wells, springs, stock tanks, and other water developments are proposed. The impact would be insignificant.

Revisions and updates based on resource studies would primarily take place on the 48 existing AMPs, with the remaining 419 proposed non-AMP allotments and 51 unallotted areas receiving minimal monitoring.

C. Improved Watershed Values and Wildlife Habitat

This alternative would initially adjust the AUMs of permitted use on 422 allotments for a net decrease of 50,592 AUMs. The adjustment would result from an increase of 3,738 AUMs on 97 allotments, a decrease of 54,330 AUMs on 325 allotments, and no change on 96 allotments. Appendix 13 shows these initial adjustments by allotment, and table 3-36 gives a summary of the

TABLE 3-38

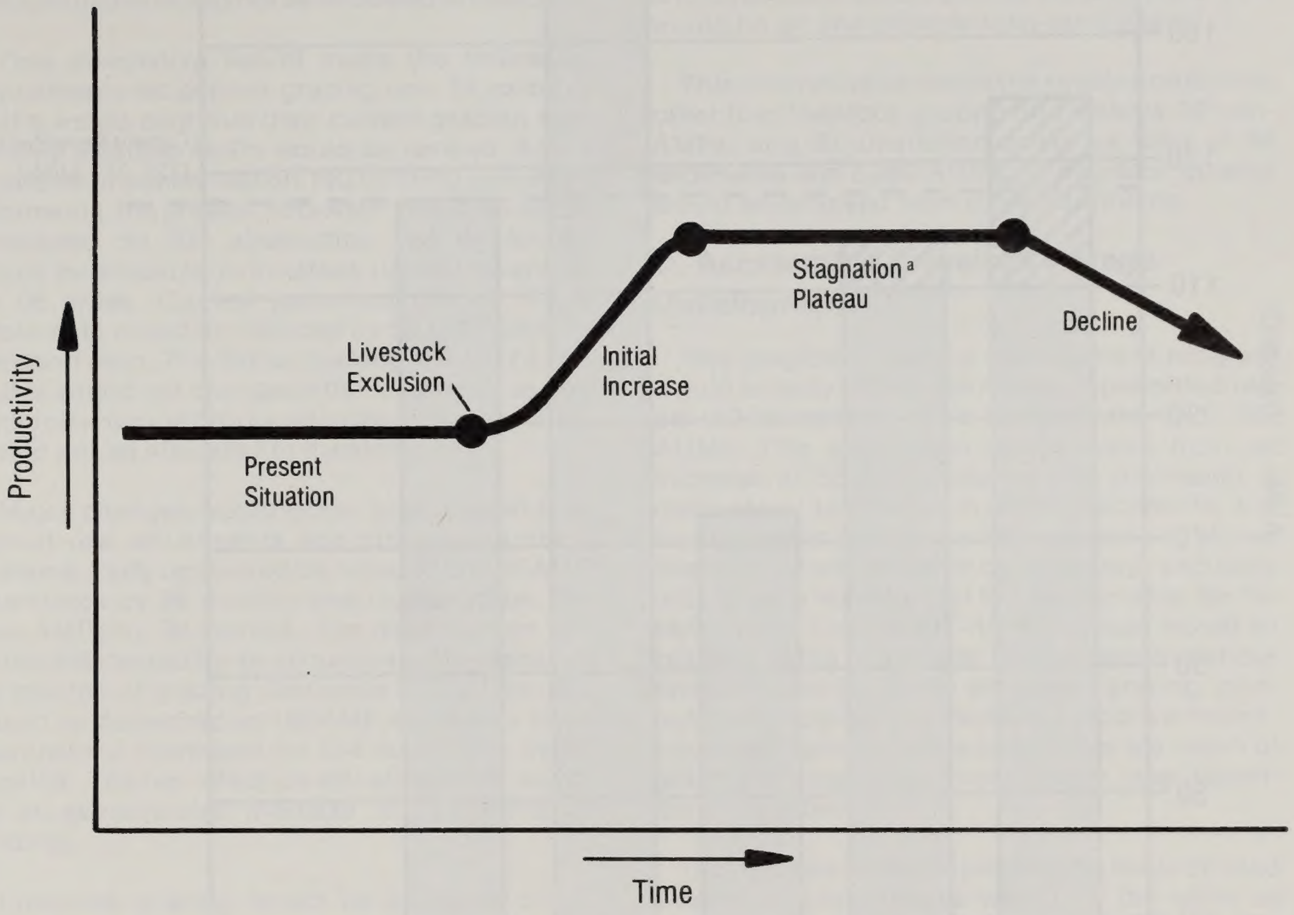
PERCENTAGE OF LIVESTOCK REDUCTION BY NUMBER OF ALLOTMENTS

Percentage of Reduction	Number of Allotments					Total
	Existing AMPs	Revised AMPs	Proposed AMPs	Non-AMPs	Unallotted Areas	
0[a]	19	10	60	97	4	190
1-9	5	2	7	13	0	27
10-19	1	4	11	15	0	31
20-29	1	2	11	22	0	36
30-49	0	3	26	50	0	79
50-74	0	1	21	36	0	58
75 & over	0	0	2	9	47	58
Exclude Livestock Grazing	0	0	0	39	0	39
TOTAL	26	22	138	281	51	518

SOURCE: BLM, 1979

[a] Allotments that have a higher initial stocking level than the current permitted use are included in this category.

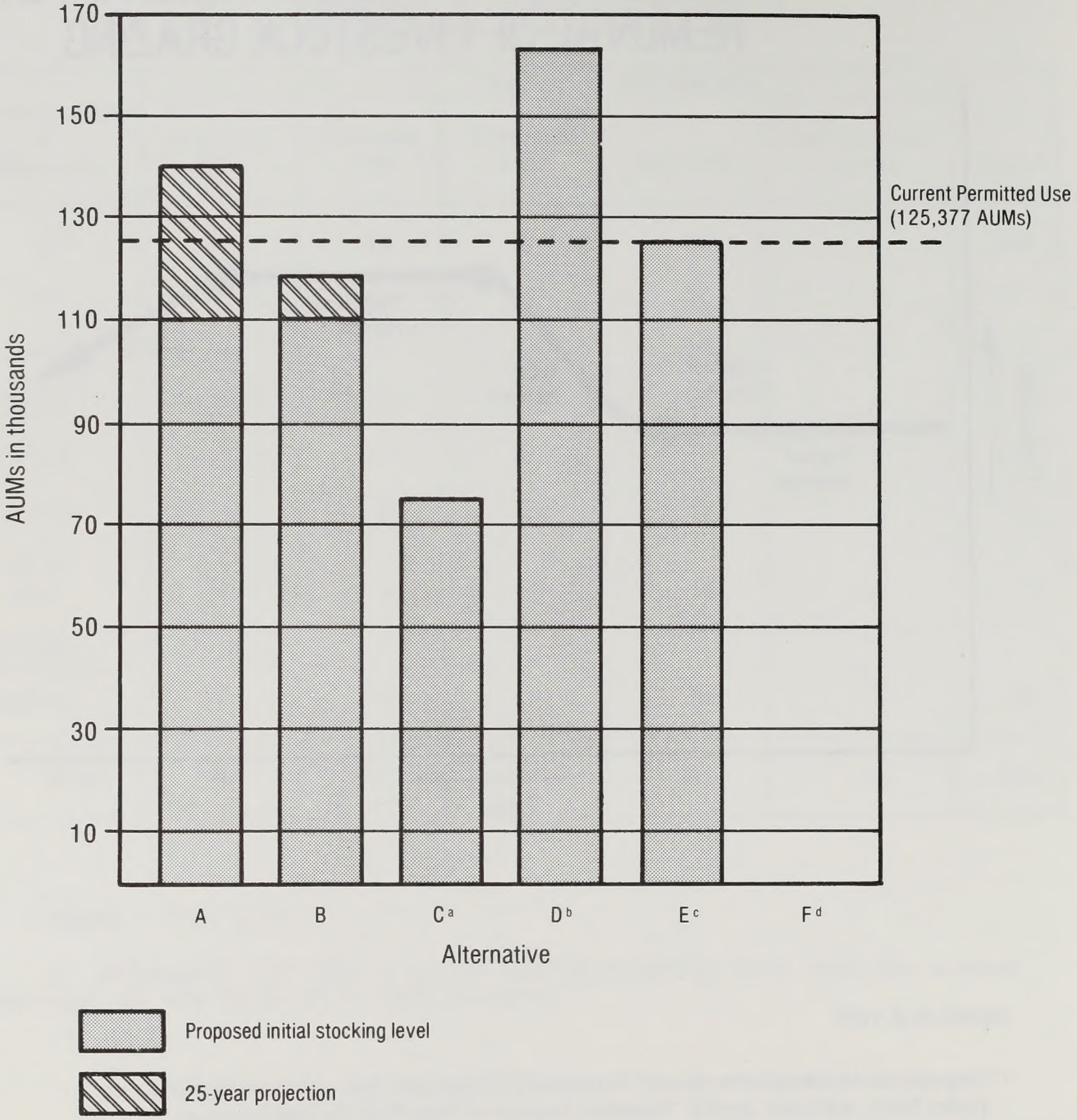
Figure 3-19: MEAN ANNUAL CHANGES IN PRODUCTIVITY THROUGH TIME AFTER REMOVAL OF LIVESTOCK GRAZING



SOURCE: BLM, 1979.

[a] "Stagnation can be defined as the reduction in productivity of range plants that results from a lack of grazing." Tueller, Paul T., and Tower, Jerald D. "Vegetation Stagnation in Three-Phase Big Game Exclosures," Journal of Range Management 32:258-263 (1979).

Figure 3-20: AUMs HARVESTED BY LIVESTOCK



SOURCE: BLM, 1979.

[a] No projections above the proposed initial stocking level were made for Alternative C because any additional forage produced would not be allocated to livestock.

[b] For comparative purposes, the short-term and 25-year projections are the same. Approximately 85% of the 25-year projection would be realized in the short term.

[c] It is assumed that the current licensed use would not be adjusted over the long term for Alternative E.

[d] No AUMs would be allocated to livestock under Alternative F.

adjustments for the study area. This reduction would be a short-term and long-term unmitigated impact, as any additional forage produced under this alternative would not be allocated to livestock.

This alternative would make the following adjustments on current grazing use: 24 existing AMPs would continue their current grazing system, 22 existing AMPs would be revised, AMPs would be implemented on 140 existing non-AMP allotments, the present non-AMP status would be continued on 234 allotments, and no forage would be allocated to livestock (unalloted areas) on 98 areas. Current permitted use on these allotments would be reduced by 50,592 AUMs in the short term. The initial stocking level of 74,785 AUMs would not change in the long term, as any additional forage produced under this alternative would not be allocated to livestock.

Major changes would occur in proposed season of use adjustments and proposed grazing systems. Early use would be reduced on 186 AMP allotments by 89 months and increased on 234 non-AMPs by 70 months. The net effect on 420 allotments would be an accumulated decrease of 19 months of grazing (see table 3-37). Late use would be decreased on 186 AMP allotments by 63 months and increased on 234 non-AMPs by 75 months. The net effect on 420 allotments would be an accumulated increase of 12 months of grazing.

Livestock grazing would be excluded on 98 areas, for an accumulated decrease of 257 months of grazing. Operators would have to find alternate sources of livestock forage during the proposed season of use adjustments. These impacts are discussed in the "Economics" section of this chapter.

Short-term unavoidable impacts would be loss of forage production through vegetation manipulation on 21,339 acres and a reduction of 50,592 AUMs through implementation of the proposed stocking level. Within two to three years, the land affected by vegetation manipulation could be producing more forage than before treatment, and in several years it should have more than compensated for the lost productivity. However, this increase would not be allocated to livestock, and it would result in a long-term impact for livestock grazing. The proposed stocking level would impose a 40 percent reduction below current permitted use and would affect 327 out of 467 allotments.

Thirty-three acres would be permanently removed for the life of the project where range developments such as wells, springs, stock tanks, and other water developments are proposed. This would be an unavoidable long-term impact.

This alternative commits the vegetation to uses other than livestock grazing on 15 AMPs, 32 non-AMPs, and 51 unallotted areas—a total of 98 allotments and 8,260 AUMs, as livestock grazing would be removed from these allotments.

D. Accelerated Livestock Forage Development

The proposed grazing management program would initially adjust the AUMs of permitted use on 442 allotments, for a net increase of 37,397 AUMs. This adjustment would result from an increase of 52,024 AUMs on 216 allotments, a decrease of 14,627 AUMs on 226 allotments, and no change on 76 allotments. Appendix 13 shows these initial adjustments by allotment, and table 3-36 gives a summary of the adjustments for the study area. This 37,397-AUM increase would be realized in the short term. This alternative stipulates no change in the proposed grazing management program. However, the proposed stocking level increase in this alternative is a result of additional vegetation manipulation (see Appendix 8, table 8A).

Impacts caused by implementing the proposed season of use changes would be the same as those of the proposed action (see table 3-37). While these changes in season of use would adversely affect current livestock grazing practices in the short term, most of these impacts would benefit the same operations over the long term of 25 years by providing better quality and quantity of livestock forage. More livestock forage than is currently under permit would be available after implementation on the 119 allotments on which additional vegetation manipulation is proposed.

Long-term impacts for this alternative would occur on the 119 allotments where vegetation manipulation projects would be conducted. Reinvasion of sagebrush in the treated areas could become evident in about 10 to 15 years after initial treatment. As the canopy of sagebrush increased, the amount of livestock forage would decrease accordingly. Reinvasion would be monitored, and adjustments in management or retreatment would be carried out to regulate the balance in species composition.

Range developments for this alternative are shown in chapter 1, table 1-8, under "EIS Area Total by Alternative."

E. No Action

This alternative would make no adjustments to the current permitted use on 518 allotments. There would be no significant changes in the livestock operations within the study area. Current trends, as discussed in chapter 2, would probably continue. The limiting factors on livestock grazing would result from the supply and demand situation as related to current and future market prices. Numbers of livestock would not change significantly. Changes from sheep to cattle would probably continue at the present rate for the next four to five years, or the short term.

F. Elimination of Livestock Grazing from Public Lands

This alternative would initially adjust the AUMs of permitted use on 518 allotments for a decrease of 125,377 AUMs. This reduction would adversely affect about 268 livestock operations that currently use forage on public land, and it would adversely affect the entire livestock industry in the study area. Although dependency varies among operators, implementation of this alternative would create critical periods within each operation to the extent that many operators could be forced to sell out or convert to crop farming. These impacts are discussed in the "Economics" section of this chapter.

This alternative proposes to mitigate impacts attributed to livestock grazing by exclusion. Exclusion would not meet the nation's demand for red meat, nor would it be commensurate with the resource objectives through an AMP. Hormay (1970) points out that a large portion of the vegetation on rangelands can be converted to more useful products only by livestock. Tueller and Tower (1979), using a three-phase big game exclosure technique, found that productivity in grazed areas is greater than in a protected area. This information suggests that resource improvement and increased productivity can be realized through managing the grazing ungulate, domestic livestock.

Trespass (unauthorized livestock use) would be a serious problem that could be partially mitigated through fencing of public land. Fencing costs for this alternative are shown by allotment in Appendix 14 and summarized in chapter 1, table 1-8, under "EIS Area Total by Alternative." The following range developments are proposed for this alternative: 2,700 miles of new fence and alteration of 260 miles of existing fence. The estimated 2,700 miles of new fence is the amount of fence that would be required to exclude livestock from public land in a "worst case" situation.

This alternative could create a number of legal actions because grazing privileges were authorized by the Taylor Grazing Act of 1934, and it would cause economic disruptions to the 268 affected operators. The policy stated in the Federal Land Policy and Management Act of 1976 that public lands will be managed in a manner which recognizes the nation's need for food and fiber, among other resources, could make the action of eliminating grazing difficult to sustain.

Conclusions

Alternatives A and B propose an initial stocking level of 110,033 AUMs, which is 15,344 AUMs below current permitted use (see table 3-36). However, the 25-year projection of AUMs used by livestock for Alternatives A and B are 31,864 and 8,754 AUMs above their respective initial stocking levels. Between these two alternatives, Alternative A has a higher rate of AUMs harvested by livestock over a 25-year period (see figure 3-21). The respective 25-year AUM projection to livestock is 16,520 AUMs above and 6,590 AUMs below the current permitted use (see figure 3-20).

Alternative A proposes to increase early grazing on 319 allotments and to make no change on 148 allotments, for an accumulation of 27 months of grazing (see table 3-37). Late grazing would be increased on 310 allotments, and there would be no change on 157 allotments, for an accumulation of 57 months of grazing. Livestock grazing would be excluded from 51 areas, for an accumulated decrease of 49 months of grazing.

Alternative B proposes to increase early grazing on 218 allotments and to make no change on 243 allotments, for an accumulation of 117 months of grazing. Late grazing would be increased on 202 allotments, and there would be no change on 265 allotments, for an accumulation of 110 months of grazing. Livestock grazing would be excluded on 51 areas, for an accumulated decrease of 49 months of grazing. Under both alternatives, there would be 518 allotments rather than the existing 561 allotments. This change is a result of creating some new allotments and combining some of the existing allotments (see table 3-35).

Alternative C proposes an initial stocking level of 74,785 AUMS, which is 50,592 AUMs below current permitted use (see table 3-36). No 25-year projection of livestock use above the initial level is made, as any additional forage produced under this alternative would be allocated to other multiple resource needs (see figure 3-21). This alternative proposes to decrease early grazing on 294 allotments and to make no change on 126 allotments, for an accumulation of 19 months of grazing (see table 3-37). Late grazing would be increased on 284 allotments, and there would be no change on 136 allotments, for an accumulation of 20 months of grazing. Livestock grazing would be excluded on 98 areas or allotments, for an accumulated decrease of 257 months of grazing. Under this alternative, there would be 518 allotments rather than the existing 561 allotments. This change is a result of creating some new allotments and combining some of the existing allotments.

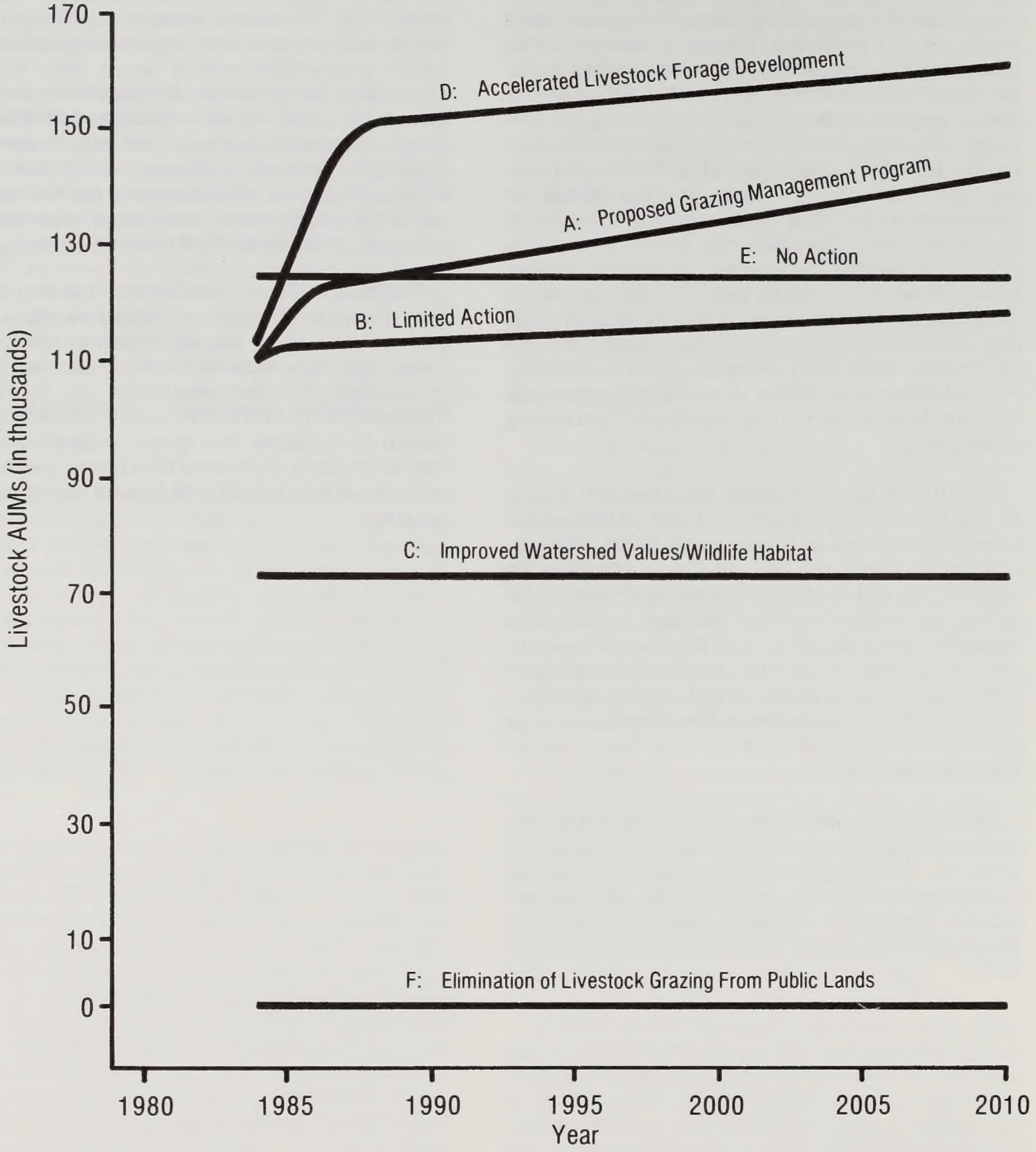
Alternative D proposes an initial stocking level of 162,774 AUMS, which is 37,397 AUMs above current permitted use (see table 3-36). The 25-year projection for AUMs used by livestock is the same as the initial stocking level, as these AUMs would be largely realized through accelerated vegetation manipulation, and they could be available about two years after treatment (see figure 3-21). Early and late season of use adjustments would be the same as those for Alternative A, as grazing management is the same for both alternatives (see table 3-35).

Alternative E proposes no change in the current permitted use, existing grazing management systems, or existing season of use by livestock (see tables 3-36, 3-37, and 3-35). No 25-year projection is made for livestock use above the current permitted use of 125,377 AUMs (see figure 3-21).

Alternative F proposes to eliminate livestock grazing from public lands, which would eliminate the current permitted use on 125,377 AUMs (see table 3-36). If livestock were removed from public lands, both positive and negative impacts to vegetation production would occur over both the short and long terms. Professional judgment based on observation indicates that the mean annual productivity would increase initially after livestock removal, a plateau would follow, and then productivity would show a decline (see figure 3-19). Stagnation could occur at various time intervals after removal of livestock grazing.

Tueller and Tower (1979) reported that stagnation of shrub species can occur as early as the second year after an exclosure is established. There is some rationale for the projected decline in productivity after stagnation, as Tueller and Tower note that on some sites there is some evidence to suggest that grass production, while higher in areas protected for several years, is still lower than it might be with the annual stimulus of grazing.

Figure 3-21: PROJECTED LIVESTOCK AUMs BY ALTERNATIVE[a]



SOURCE: BLM, 1979

[a] It is assumed that changes would begin after the four-year implementation phase (1980-1984).

SOCIAL AND ECONOMIC CONDITIONS

This section analyzes three distinct areas of impact on social and economic conditions; impacts on social well-being and attitudes, direct impacts on ranch economic conditions, and direct and indirect impacts on the regional economy.

Social Conditions

Social Well-being

Changes in BLM grazing would have an effect on ranch income, which in turn would have an impact on the social well-being of families who depend on this income. The impacts on ranch income are assessed in the next section. The social well-being of small commercial operators has the greatest potential for being affected. These people are earning a minimum income at present, and any reduction would have an impact on their standard of living. They would be forced into an even lower level of consumption in such areas as home furnishings, entertainment, clothing, and transportation. In order to reduce food costs, they would probably intensify their efforts to raise more products for home consumption.

Income reduction could also force operators and their families to seek off-ranch employment, if they are not already employed off the ranch. This could drastically change lifestyles. Operators who have never had to work for anyone would lose some of their freedom to work independently. Basic family relationships would be disrupted with members of the family working in various locations off the ranch.

Operators and families that are forced to sell would have to change their way of life entirely, and for those that do not have the training and skills to enter into the job market, the impact could be devastating.

Any increases in ranch income would raise the standard of living. The level of consumption could be increased, with more funds being spent on such items as travel and entertainment.

Under the proposed action, the social well-being of approximately 240 ranch families (870 persons) would be negatively affected in the short term to some degree. The social well-being of approximately 46 ranch families (310 persons) would be improved in the short term. In the long term, 179 ranch families (650 persons) would continue to be adversely affected. The social well-being of approximately 175 ranch families (630 persons) would be improved in the long term.

The short-term impact of Alternative B on social well-being would be the same as that of the proposed action. In the long term, social well-being would improve for approximately 108 ranch families (390 persons), and it would continue to be reduced for approximately 214 ranch families (780 persons).

In both the short term and long term, the social well-being of approximately 326 ranch families (1,180 people) would be adversely affected to some degree by Alternative C. A few (23 ranch families, or 120 persons) would experience varying degrees of improvement in their social well-being.

Alternative D would generate improvements in varying degrees in the social well-being of approximately 183 ranch families (660 persons) in both the short term and the long term. Almost as many, 172 families (620 persons), would experience a reduction in their social well-being due to reduced ranch income.

At least "on paper," Alternative E would appear to cause no change in the social well-being of the estimated 370 families (1,340 people) that depend upon the 216 ranches under study.

Elimination of livestock grazing under Alternative F would affect the income of all the 216 ranches (370 families) that lease BLM grazing. The incomes of those ranches that are only slightly dependent upon BLM grazing would not be reduced to any great extent. For them, the impact on family social well-being would be virtually nil. Thus, somewhat fewer than 370 families involved in this alternative would suffer adverse impacts.

Social and Cultural Attitudes

The social and cultural attitudes of ranch operators and their families would be directly affected through grazing adjustments. Reductions in livestock forage for the benefit of wildlife conflict with the ranching community's beliefs concerning the highest and best use of the public lands. Allocation of more forage to wildlife would be a threat, real or only perceived, to the ranching community's sense of security. At the same time, allocation of more forage to wildlife would be favorably received by sportsmen and environmentalists, because it would conform to their beliefs and expectations.

Implementation of AMPs in many instances would be viewed by the involved operator as an expansion of government control over his ranch management prerogatives. To the extent that AMPs improve range condition, carrying capacity, and livestock watering facilities and do not infringe too much on the way the operator manages his ranch, the impacts on attitude would be positive. However, in instances where implementation of AMPs would significantly change ranch operations and do little to benefit the operator, the attitude toward the BLM would be increasingly hostile.

The proposed action would have both positive and negative effects on social and cultural attitudes. Overall, this alternative would mean greater government presence and control in a basically conservative ranching community. Environmentalists' and sportsmen's attitudes, both within and outside the community, would be favorably affected, since more intensive management would mean greater benefits to them, even if these benefits were only perceived.

The impact on social and cultural attitudes under Alternative B would be much the same as those described in Alternative A. Fewer AMPs would be implemented, and thus fewer ranch operators would feel that the government was trying to exert more control over management of their ranch operations.

The ranching community's hostility toward the BLM and its management program would increase in intensity under Alternative C. The ranching community would feel that the BLM was depriving them of an opportunity to lead a hard-working, independent life and was threatening their very existence just to benefit a few wild animals and protect the watershed. Improvement of wildlife habitat probably would also lead to more conflict between ranch operators and sports enthusiasts. At the same time, the attitudes that environmentalists and sportsmen hold would be favorably influenced.

In general, the attitudes of ranch operators and that part of the community that closely identifies with them would probably be favorable toward Alternative D. Although ranch operators would, in a sense, have to put up with greater government control, the economic benefits would be substantial. The attitude of environmentalists would be less favorable, because many range developments and much vegetative manipulation are included in this alternative.

The attitudes of the ranching community would be favorable toward Alternative E because it essentially would preserve the status quo, a value which they hold very high. It would be unfavorably perceived by people who want to see the BLM intensify rangeland management to reverse deteriorating range, wildlife, and environmental conditions.

Alternative F would probably have a devastating negative effect on the attitudes and expectations of nearly everyone concerned with the public lands. It would, of course, have a significant negative effect on the attitude of ranch operators whose livestock graze BLM lands. Sports enthusiasts and environmentalists would not approve of the thousands of miles of fence that might, in a "worst case" situation, have to be constructed to exclude livestock. The local community and national interests would be greatly disappointed to see an economic resource essentially going to waste.

Conclusions

Implementation of AMPs and reductions in grazing would have a negative impact on ranch operators' social well-being, independence, and attitude that livestock grazing is the highest and best use of the land. Allotment management plans that produce large economic benefits would enhance social well-being and general attitudes of operators, their families, and the associated community. Some aspects of a grazing management program would produce negative social impacts because the program would involve more government control and presence in a basically conservative ranching community.

Ranch Economic Conditions

This section analyzes the direct effects of grazing increases and decreases of each alternative on ranch income, permit values, ranch employment, and personal property taxes.

A. The Proposed Action

The proposed action would have both positive and negative impacts on ranch income in the short term and the long term. To determine the economic impact on ranch operations, grazing reductions were calculated as the differences between current actual use (if known) and proposed permitted use. If current actual use was not known, then calculations were based on current permitted use. Ranch operators may actually be using less forage than allowed by their permits. In these cases, the true forage loss would be less than the figures show. Grazing privileges would be lost, but these would be "paper" losses, as opposed to real forage losses. It is estimated that the actual amount of forage reduction could be as much as 5 to 10 percent less than permitted reduction. Thus, the real economic impact of changes in grazing management may be overestimated in this analysis by as much as 5 to 10 percent.

Table 3-40 shows the economic impact of proposed grazing reductions, and table 3-41 shows the economic impact of grazing increases at the initial stocking level for representative ranches in four size categories: small commercial, medium commercial, large commercial, and very large commercial. Also shown is the percentage of reduction in ranches' total grazing (seven months) caused by the proposed reduction in BLM grazing. Percentage of reduction is divided into four categories: more than 0 to 0.9 percent, 1 to 4.9 percent, 5 to 9.9 percent, and 10 to 15 percent. Of the 216 ranches leasing BLM lands in the study area, 137 are proposed for reductions, 46 are proposed for grazing increases, and 33 ranch operations would not be affected at the initial stocking level. Also, six grazing associations are proposed for reductions.

The economic impact on ranch operations caused by BLM forage reductions or increases was determined through partial ranch budgeting (for an explanation of the process, see Appendix 22). The impact on individual ranch income could vary considerably, depending upon the percentage of change in grazing, the size of the operation, and the way the operator would adjust the ranch operation to changes in grazing.

Information gathered from a sample of ranches (methodology explained in Appendix 22) indicates that operators would generally adjust to grazing reductions by either purchasing hay or reducing herd size. The small operators would tend to maintain herd size and buy hay, whereas the larger operators would tend to reduce herd size. Other means of compensating for the losses in BLM forage, at least in the short term, appear less viable. These include such things as increasing hay production on private lands, converting cropland to hay or pasture production, increasing grass production on private lands, and leasing private grazing.

As table 3-40 shows, the most significant economic impact would accrue to the seven ranches in the 10 to 15 percent reduction category. Of the seven, four are in the small commercial size category. On the average, annual net ranch income would be reduced by $2,500. This is a reduction of 40 percent from current annual net ranch income of $6,340.

The next most significant reductions are in the 5 to 9.9 percent category; this involves 32 ranches. Of the 32, nine are ranches in the small commercial category. The annual net income of these ranches would be reduced by an average of $1,100, which is an average reduction of 17 percent from current income.

It is estimated that 61 families (220 persons) are involved with the 39 ranch operations most heavily affected by grazing reductions. An estimated 90 percent of these families receive their primary income from ranching. However, the ultimate impact on the economic well-being of the operators and their families from income reductions is difficult to project.

Since the primary source of income most of the operators is the ranch, any reduction in ranch income would cause an equivalent reduction in their personal income. Even with substantial reductions in income, most small commercial operators would probably continue ranching, at least in the short term. Data gathered in the study area and from independent research indicate that ranch operators would try to maintain their ranching way of life at amost any cost (Smith and Martin 1972).

There are various actions that small commercial operators might take to enable them to continue ranching. Those not now employed off the ranch might seek outside part-time or fulltime employment to ameliorate ranch income losses. The extent to which this might happen would depend upon the availability of jobs, operator and family work skills, and the degree to which family members are now underemployed on the ranch.

In ranch business management, operators might not allow for depreciation, or they might defer maintenance on improvements and machinery and replace machinery only when it became absolutely necessary. Opportunity cost and equity capital might be ignored. Also, some operators might borrow on their equity capital to meet short-term operating and family living expenses. This process could not go on for very many years, however. Eventually the ranch operator would

TABLE 3-40

ESTIMATED SHORT-TERM NEGATIVE IMPACTS OF THE PROPOSED GRAZING MANAGEMENT PROGRAM ON NET ANNUAL RANCH INCOME

		Percentage of Grazing Reductions[a]																			
		More than 0 to 0.9%				1.0% to 4.9%				5.0% to 9.9%				10% to 15%				Grand Total			
			Reductions in Annual Income[b]				Reductions in Annual Income[b]				Reductions in Annual Income[b]				Reductions in Annual Income[b]				Reductions in Annual Income[b]		
Ranch Size Category	Average Size by Number of Brood Cows	Number of Ranches	Average per Ranch	Percentage per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percentage per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percentage per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percentage per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percentage per Ranch	All Ranches
Small Commercial	130	3	$100	1.6	$ 300	12	$ 430	6.8	$ 5,160	9	$ 1,100	17.4	$ 9,900	4	$ 2,550	40.2	$10,200	28	$ 910	14.4	$ 25,560
Medium Commercial	325	16	345	0.8	5,520	22	1,175	2.8	25,850	12	3,430	8.3	41,160	2	7,430	17.6	14,860	52	1,680	4.1	87,390
Large Commercial	625	12	345	0.4	4,140	16	2,515	5.9	40,240	8	7,775	18.4	62,200	1	10,130	12.0	10,130	37	3,150	3.7	116,710
Very Large Commercial	**2,000**	10	910	0.4	9,100	7	6,410	2.9	44,870	3	12,915	5.9	38,750	0				20	4,640	2.1	92,720
Total		41			$19,060	57			$116,120	32			$152,010	7			$35,190	137			$322,380

SOURCE: BLM, 1979

NOTE: In addition to the above figures, six grazing associations would be reduced 1,534 AUMs for a loss in net annual income of $24,540.

a. Percentage of reduction in ranches' total grazing (7 months period) due to the reduction in BLM AUMs.

b. Decrease in annual income at the initial stocking level projected in current dollars.

TABLE 3-41

ESTIMATED SHORT-TERM POSITIVE IMPACTS OF THE PROPOSED GRAZING MANAGEMENT PROGRAM ON NET ANNUAL RANCH INCOME

Ranch Size Category	Average Size by Number of Brood Cows	Percentage of Grazing Increases[a]																			
		More than 0 to 0.9%				1.0% to 4.9%				5.0% to 9.9%				10% to 15%				Grand Total			
			Increases in Annual Income[b]				Increases in Annual Income[b]				Increases in Annual Income[b]				Increases in Annual Income[b]				Increase in Annual Income[b]		
		Number of Ranches	Average per Ranch	Percent-age per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percent-age per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percent-age per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percent-age per Ranch	All Ranches	Number of Ranches	Average per Ranch	Percent-age per Ranch	All Ranches
Small Commer-cial	130	5	$ 55	0.9	$ 275	2	$ 190	3.0	$ 380	1	$ 645	10.2	$ 645	0				8	$ 325	5.1	$ 1,300
Medium Commer-cial	325	6	165	0.4	990	7	760	1.8	5,320	1	1,670	4.0	1,670	1	$3,020	7.3	$3,020	15	730	1.8	11,000
Large Commer-cial	625	9	160	0.2	1,440	4	1,350	1.6	5,400	0				0				13	525	0.6	6,840
Very Large Commer-cial	2,000	6	1,080	0.5	6,480	4	3,340	1.5	13,360	0				0				10	1,970	0.9	19,840
Total		26			$9,185	17			$24,460	2			$ 2,315	1			$3,020	46			$38,980

SOURCE: BLM, 1979.

a. Percentage of increase in ranches' total grazing (7 months period) due to the increase in BLM AUMs.

b. Increase in annual income at the initial stocking level projected in current dollars.

reach a point where he would have to account for depreciation costs. Also, his debts might accumulate to the point where he would be faced with bankruptcy or selling out. These factors suggest that ranchers may be very resilient to reductions in BLM grazing; nevertheless, there would be significant financial hardship for some who might choose to persist.

The income amounts and reductions in income are averages. Some operators, especially those who might have purchased their ranches in the past ten years, have above average debt service costs, and thus lower cash income. Reductions in income caused by reductions in BLM forage might be enough in these situations to force an operator to sell. There are probably a few operators in the study area that fall in this category, but lack of information does not permit a determination of the exact number.

As shown in table 3-41, at the initial stocking level, grazing increases above the actual or current permitted use are proposed for 46 ranch operations. It is estimated that these 46 ranches involve about 84 families, or about 305 persons. The average increase in annual ranch income would be about $850 per operation, with five small commercial operations receiving the least ($55) and one medium commercial ranch receiving the most, $3,000. These income figures are based on the most likely adjustment that operators would make in their ranch operations with increases in BLM grazing. Information gathered from ranchers indicated that at least in the short run they could utilize the increased forage most efficiently by holding over more calves to be sold as yearlings. Through this means, they would be able to take advantage of the increased grazing without any significant adjustment in ranch operations or feed balance.

The long-term economic effect on ranch income from the proposed action is shown in tables 3-42 and 3-43. The impact on income is based on the assumption that increases in forage would be made available as achieved, with first consideration given to operators with reductions. In addition, it is assumed that increased forage would be allocated between livestock and "other uses" at the same percentage as was used in the Mountain Foothills Management Framework Plan.

As table 3-42 shows, it is projected that 103 ranches would continue to receive reductions in the year 2010. Thus, of the 137 ranch operations that received reductions initially, it is projected that 34 would have their reductions fully restored by 2010. Also, some would have their reductions partially restored. The partial restoration in grazing privileges is reflected in income terms by the difference in income reduction at the initial stocking level and in the year 2010. The annual income reduction for all ranches in the year 2010 is projected to be $179,780, which is $142,600 less than the reduced annual income at the initial stocking level.

Table 3-43 shows that 101 ranch operations are projected to receive increases over the current level of permitted use (actual use when known). The economic impact of these increases is estimated to be $232,760 annually by the year 2010. This is an average annual increase in income per ranch of approximately $2,300 over the current level. At a minimum, 24 small commercial operations would receive an estimated average amount of $485 each, while 16 very large commercial operations would average a maximum of $6,970 each.

Increases in income due to increases in BLM forage would improve the economic well-being of operators in a number of ways. Operators who might have diverted funds for allowance for depreciation, deferred maintenance, or deferred principal and interest payments would be in a position to allocate more funds to these areas. Increased income might also be used to raise the living standards of some operators.

The very large commercial operations would receive 48 percent of the projected annual increase in income ($232,760 annually) by the year 2010, and the small commercial operations would receive 5 percent. This distribution of the increase is to be expected because of the existing distribution of AUMs.

To summarize the economic impacts at the initial stocking level under the proposed action, 137 ranch operations would receive reductions of $322,380 annually, 46 ranch operations would receive increases of $38,980 annually, and 33 ranch operations would have no change in income. Overall net reduction in annual income would be approximately $283,400, which would be about a 2 percent reduction from the current income for all ranches, which is $14,704,220. Also, six grazing associations would receive income reductions of $24,500.

By the year 2010, 103 ranches would have reductions in annual income of $179,780, and 101 ranches would have increases in annual income of $232,760, for a net increase in income of

TABLE 3-42

ESTIMATED NEGATIVE LONG-TERM IMPACTS OF THE PROPOSED GRAZING MANAGEMENT PROGRAM ON NET ANNUAL RANCH INCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Reduction in BLM AUMs per Ranch	Average Percentage of Reduction per Ranch[a]	Average Annual Net Income per Ranch	Reduced Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	23	55	5.0	$ 6,340	$ 920	14.5	$ 21,160
Medium commercial	200-499	325	40	83	3.0	41,290	1,490	3.6	59,600
Large commercial	500-999	625	27	140	2.0	84,180	2,300	2.7	62,100
Very large commercial	1,000 or greater	2,000	13	201	1.0	218,050	2,840	1.3	36,920
TOTAL			103						$179,780

SOURCE: BLM, 1979.

NOTE: In addition, six grazing associations would be reduced 1,297 AUMs for a decrease in net annual income of $20,750.

a. Percentage reduction in ranches' total grazing (7 month period) due to the reduction in BLM AUMs.

b. Decrease in annual income by the year 2010 projected in current dollars.

TABLE 3-43

ESTIMATED POSITIVE LONG-TERM IMPACTS OF THE PROPOSED GRAZING MANAGEMENT PROGRAM ON NET ANNUAL RANCH INCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Increase in BLM AUMs per Ranch	Average Percentage of Increase per Ranch[a]	Average Annual Net Income per Ranch	Increased Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	24	54	5.0	$ 6,340	$ 485	7.6	$ 11,640
Medium commercial	200-499	325	37	180	6.0	41,290	1,600	3.9	59,200
Large commercial	500-999	625	24	230	4.0	84,150	2,100	2.5	50,400
Very large commercial	1,000 or greater	2,000	16	776	4.0	218,050	6,970	3.2	111,520
TOTAL			101						$232,760

SOURCE: BLM, 1979.

NOTE: In addition, one grazing association would be increased 540 AUMs for an increase in net annual income of approximately $5,000.

a. Percentage increase in ranches' total grazing (7 month period) due to the increase in BLM AUMs.

b. Increase in annual income by the year 2010 projected in current dollars.

$52,980 annually. This would be only a slight increase above the current income of $14,704,220 generated by the 216 study area ranches. In addition, six grazing associations would receive reductions and one would receive an increase, for a net reduction of $15,750 annually by the year 2010.

Adjustments in BLM grazing would have both positive and negative effects on the total value of BLM grazing permits. This would, in turn, have an effect on ranchers' borrowing capacity and the sale value of their affected ranches. Ranchers, BLM appraisers, and the Bozeman Federal Land Bank, Dillon Branch, estimate that the current market value of a BLM permit averages approximately $90 per AUM.

As shown on table 3-44, the total reduction in permit values to 137 ranches with reductions at the initial stocking level would be $1,813,050. The total increase in permit values for 46 ranches with grazing increases at the initial stocking level would be $389,160. The overall net decrease in permit values for all affected ranches would be $1,423,890. Current permit values for the 216 study area ranches is $10,536,480. In addition, six grazing associations would have a reduction of $138,060 in permit values at the initial stocking level.

By the year 2010, permit values for all affected ranches would show an increase of $1,342,260. This is about a 13 percent increase over the current level (table 3-45). In addition, seven grazing associations would have an overall reduction in permit values of $68,130 by the year 2010. Changes in permit values would not affect cash flow. Increases or decreases in permit values would be realized as cash only if and when ranches were sold.

Increases or decreases in permit values could have an impact on the amount of long-term funds that an operator could borrow. A large number of ranchers in this study area obtain long-term loans through the Federal Land Bank Association. The impact on their ability to obtain loans is best described by the following statement made in a letter from the Farm Credit Association to the Bureau of Land Management.

> Ranchers/farmers obtain long-term loans through the Federal Land Bank Association. Federal law limits the size of real estate loans to 65 percent of the normal agricultural value as specified in the appraisal report. Ranches are appraised on the number units, or "cows yearlong." Appraisals are based primarily on projected ranch income and closely tied to permitted livestock AUM use. However, whenever federal grazing is involved current policies set the maximum loans at 60 percent of normal agricultural value (60 percent of agricultural value approximates 40 percent of market value). The majority of loans within the Spokane District where BLM, or other federal grazing (e.g., national forest), has been involved have not exceeded 50 percent of appraised agricultural value, or 30 percent of market value.

From the above statement, it could be concluded that the impact of BLM grazing reductions on an operator's ability to borrow long-term funds would be limited. Although grazing reductions indirectly reduce the total amount that can be borrowed, most operators are not borrowing up to the maximum amount anyway. The more important impact of grazing reductions in this regard is the effect it has on the operator's ability to repay any loan and on the amount of interest that he might receive from savings. This impact is reflected in the reduction of ranch income.

The direct impact on ranch employment from grazing adjustments in the proposed action would not be significant. Probably the equivalent of only five fulltime hired ranch employees would lose their jobs in the short term. In the long term, these would be regained. Ranch employment impacts would not be significant, because most operators with reductions would try to maintain their herd sizes. Even with some reduction in herd size, most ranchers would continue to hire the same amount of labor, because it is largely fixed and cannot be reduced in small increments as herd size changes.

The overall local tax base would not be affected to any great extent. Reduction or increases in AUMs would have an effect on the overall value of ranches; however, since operators are taxed only on their private real estate, changes in BLM AUMs would not affect the assessed valuation of their real property. The local personal property tax base would undergo some change because of changes in livestock numbers. Assessed valuation would be reduced by an estimated $281,000 and property taxes by $4,500 in the study area at the initial stocking level. This is about a 1 percent reduction from the current level of $490,000. In the long term, personal property taxes from live-

TABLE 3-44

ESTIMATED SHORT-TERM IMPACTS OF THE PROPOSED GRAZING MANAGEMENT PROGRAM ON PERMIT VALUES[a]

Ranch Size Category	Grazing Reductions			Grazing Increases		
	Number of Ranches	Avg.Reduction Per Ranch	All Ranches	Number of Ranches	Avg.Increase Per Ranch	All Ranches
Small commercial	28	$ 4,950	$ 138,600	8	$ 1,620	$ 12,960
Medium commercial	52	9,000	468,000	15	7,200	108,000
Large commercial	37	16,650	616,050	13	5,400	70,200
Very large commercial	20	29,520	590,400	10	19,800	198,000
TOTAL	137		$1,813,050	46		$389,160

SOURCE: BLM, 1979.

NOTE: The net decrease in permit value for all affected ranches in the study area would be $1,423,890. In addition, six grazing associations would have reductions in grazing permit values of $138,060.

[a] Based on permit value of $90 per AUM. It is assumed that the relative value of the permit would stay the same. If grazing fees increased to fair market value, relative values of the permits could decrease.

TABLE 3-45

ESTIMATED LONG-TERM IMPACTS OF THE PROPOSED GRAZING MANAGEMENT PROGRAM ON PERMIT VALUES[a]

Ranch Size Category	Grazing Reductions			Grazing Increases		
	Number of Ranches	Avg.Reduction Per Ranch	All Ranches	Number of Ranches	Avg.Increase Per Ranch	All Ranches
Small commercial	23	$ 4,950	$ 113,850	24	$ 4,860	$116,640
Medium commercial	40	7,470	298,800	37	16,200	599,400
Large commercial	27	12,600	340,200	24	20,700	496,800
Very large commercial	13	18,090	235,170	16	69,840	1,117,440
TOTAL	103		$988,020	101		$2,330,280

SOURCE: BLM, 1979.

NOTE: The net increase in permit value for all affected ranches in the study area would be $1,342,260. In addition, six grazing associations would have increases in grazing permit values of $48,600.

a. Based on permit value of $90 per AUM. It is assumed that the relative value of the permit would stay the same. If grazing fees increased to fair market value, relative values of the permits could decrease.

stock would be increased an estimated $500 above the current level.

B. Limited Action

Short-term economic impacts of grazing adjustments under the limited action alternative (B) would be the same as those of the proposed grazing management program, because the same number of AUMs would be permitted to livestock at the initial stocking level under both alternatives.

In the long term, there would be some increases in AUMs from the initial stocking level to the year 2010, but not enough to restore the reductions from the current level. The overall economic impact of this is shown in tables 3-46 and 3-47. Of the 137 ranches proposed for reduction at the initial stocking level, it is projected that 124 would continue to receive reductions from the current level by the year 2010. The 124 ranches would have reduced income from their current levels of approximately $275,650 annually by the year 2010. In addition, six grazing associations would sustain a reduction in income of $22,770 annually from their current level.

It is projected that 59 ranches would have AUM increases over the current level in the long term. The increases would be generated by existing and revised AMPs. The economic impact of these increases is estimated to be $74,130 annually by the year 2010, and it is projected that one grazing association would have an income increase of approximately $5,000.

In conclusion, in the short term, grazing adjustments would result in an annual overall income reduction of $283,400. In the long term, a net annual overall income reduction for the 183 ranches receiving grazing adjustments would be $201,520. This is about a 1 percent reduction from the current level of $14,704,220. Thirty-three ranches either would not be affected or would have their AUMs restored to the current level by the year 2010 under this alternative.

Since the number of AUMs estimated to be available for livestock at the initital stocking level is the same for this alternative as it is for the proposed grazing management program, the impact on permit values would be the same as that shown in table 3-44.

As shown in table 3-48, the overall reduction in permit values by the year 2010 for this limited action alternative would be $782,730 for the 183 individual ranches affected. The total permit value for the 216 ranches in the study area is $10,536,480. The net reduction in permit values for the grazing associations would be $79,470.

The impact of Alternative B on employment at the initial stocking level would be the same as that of the proposed action, a reduction of the equivalent of five fulltime hired ranch workers. Unlike the proposed action, however, in the long run these employment reductions would probably not be restored under the limited action alternative.

The impact on public finance at the initial stocking level would be the same under this alternative as under the proposed action. The overall reduction in tax revenue by the year 2010 would be approximately $3,500. This is less than 1 percent reduction from the current level of $490,000.

C. Improved Watershed Values and Wildlife Habitat

Alternative C would have a significant negative impact on ranch income. Annual decreases in income to 190 ranches would be $807,520 (table 3-49). Also, six grazing associations would sustain a reduction in income of $56,210 annually. Decreases in income would be the same in both the short term and the long term, because the decreases in AUMs, once established, would be permanent.

Under this alternative, 13 ranches would receive slight increases in AUMs, which would generate an increase in annual income of $6,140 (table 3-50). Thirteen ranches would not be affected by this alternative. The overall reduction for the 203 ranches affected by this alternative would be $801,380 annually. This is a decrease of about 5 percent in the total current annual income of $14,704,220 generated by the 216 ranches under study.

The average reduction in income of 45 small commercial ranch operations would be about 20 percent of the current annual income of $6,340. Since this is an average, some ranches would suffer larger reductions in income than 20 percent. Probably 15 to 20 of these operations with the higher than average impacts would be forced out of business, or the operator and his family would be forced to seek off-ranch employment if they were not already employed off the ranch.

An overall reduction in permit values of $4,506,750 would be sustained by the 203 ranches affected by this alternative (table 3-51). A total of 190 ranches would receive a decrease of $4,568,130, while 13 would receive an increase of $61,380.

TABLE 3-46

ESTIMATED LONG-TERM NEGATIVE IMPACTS OF THE LIMITED ACTION ALTERNATIVE ON NET ANNUAL RANCH INCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Reduction in BLM AUMs per Ranch	Average Percentage of Reduction per Ranch[a]	Average Annual Net Income per Ranch	Reduced Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	27	58	5.3	$ 6,340	$ 970	15.3	$ 26,190
Medium commercial	200-499	325	48	92	3.3	41,290	1,650	4.0	79,200
Large commercial	500-999	625	32	199	2.8	84,180	3,270	3.9	104,640
Very large commercial	1,000 or greater	2,000	17	273	1.4	218,050	3,860	1.8	65,620
Total			124						$275,650

SOURCE: BLM, 1979.

NOTE: In addition, six grazing associations would be reduced 1,423 AUMs for a decrease in net annual income of $22,770.

a. Percentage reduction in ranches' total grazing (7 month period) due to the reduction in BLM AUMs.

b. Decrease in annual income by the year 2010 projected in current dollars.

TABLE 3-47

ESTIMATED LONG-TERM POSITIVE IMPACTS OF THE LIMITED ACTION ALTERNATIVE ON NET ANNUAL RANCH INCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Increase in BLM AUMs per Ranch	Average Percentage of Increase per Ranch[a]	Average Annual Net Income per Ranch	Increased Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	11	23	2.1	$ 6,340	$ 210	3.3	$ 2,310
Medium commercial	200-499	325	20	86	2.9	41,290	765	1.9	15,300
Large commercial	500-999	625	17	80	1.4	84,180	730	0.9	12,410
Very large commercial	1,000 or greater	2,000	11	451	2.3	218,050	4,010	1.8	44,110
TOTAL			59						$ 74,130

SOURCE: BLM, 1979.

NOTE: In addition, one grazing association would be increased 540 AUMs for an increase in net annual income of approximately $5,000.

a. Percentage increase in ranches' total grazing (7 month period) due to the increase in BLM AUMs.

b. Increase in annual income by the year 2010 projected in current dollars.

TABLE 3-48

ESTIMATED LONG-TERM IMPACTS OF THE LIMITED ACTION ALTERNATIVE ON PERMIT VALUES[a]

	Grazing Reductions			Grazing Increases		
Ranch Size Category	Number of Ranches	Avg.Reduction Per Ranch	All Ranches	Number of Ranches	Avg.Increase Per Ranch	All Ranches
Small commercial	27	$ 5,220	$ 140,940	11	$ 2,070	$ 22,770
Medium commercial	48	8,280	397,440	20	7,740	154,800
Large commercial	32	17,910	573,120	17	7,200	122,400
Very large commercial	17	24,570	417,690	11	40,590	446,490
TOTAL	124		1,529,190	59		$746,460

SOURCE: BLM, 1979.

NOTE: The net decrease in permit value for all affected ranches in the study area would be $782,730. In addition, six grazing associations would have reductions in grazing permit values of $128,070, and one would have an increase of $48,600.

[a] Based on permit value of $90 per AUM. It is assumed that the relative value of the permit would stay the same. If grazing fees increased to fair market value, relative values of the permits could decrease.

TABLE 3-49

ESTIMATED SHORT-TERM AND LONG-TERM NEGATIVE IMPACTS OF THE IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT ALTERNATIVE ON NET ANNUAL RANCH INCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Reduction in BLM AUMs per Ranch	Average Percentage of Reduction per Ranch[a]	Average Annual Net Income per Ranch	Reduced Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	45	74	6.8	$ 6,340	$ 1,240	19.6	$ 55,800
Medium commercial	200-499	325	69	173	6.2	41,290	3,100	7.5	213,900
Large commercial	500-999	625	50	312	4.4	84,180	5,130	6.1	256,500
Very large commercial	1,000 or greater	2,000	26	765	3.9	218,050	10,820	4.9	281,320
TOTAL			190						$ 807,520

SOURCE: BLM, 1979.

NOTE: In addition, six grazing associations would be reduced 3,513 AUMs for a decrease in net annual income of $56,210. Impact would be the same at the initial stocking level and in the year 2010.

[a] Percentage reduction in ranches' total grazing (7 month period) due to the reduction in BLM AUMs.

[b] Decrease in annual income projected in current dollars.

TABLE 3-50

ESTIMATED SHORT-TERM AND LONG-TERM POSITIVE IMPACTS OF THE IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT ALTERNATIVE ON NET ANNUAL RANCH INCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Increase in BLM AUMs per Ranch	Average Percentage of Increase per Ranch[a]	Average Annual Net Income per Ranch	Increased Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-999	130	0	0	0	$ 6,340	$ 0	0	$ 0
Medium commercial	200-499	325	10	49	1.6	41,290	440	1.1	4,400
Large commercial	500-999	625	1	132	2.3	84,180	1,200	1.4	1,200
Very large commercial	1,000 or greater	2,000	2	30	0.1	218,050	270	0.1	540
TOTAL			13						$ 6,140

SOURCE: BLM, 1979.

a. Percentage increase in ranches' total grazing (7 month period) due to the increase in BLM AUMs.

b. Increase in annual income projected in current dollars.

Additionally, six grazing associations would receive a decrease in permit values of $316,170. Increases and decreases would be the same in both the short term and the long term. As the overall decrease in permit values under Alternative C would be only a "paper" loss, it would probably not have any impact on ranchers' ability to borrow money. The nature of the possible impact is described in the discussion of permit values under Alternative A.

The equivalent of 14 fulltime hired ranch employees would lose their jobs under this alternative. The reductions would be permanent, so the long-term loss would be the same as the short-term loss. Loss in jobs could be somewhat less than expected. Many operators would continue to hire the same number of employees because they cannot reduce employees in small increments as AUMs are reduced.

Under this alternative, personal property taxes generated by livestock would be reduced by an estimated $12,700 annually. This is approximately a 3 percent reduction for the total current level of $490,000. Although the overall value of some ranches would be reduced by the reduction in permit values, real property taxes would not be affected, because only the private lands are assessed.

D. Accelerated Livestock Forage Development

As would be expected, Alternative D would have the largest beneficial impact on ranch income of all alternatives. The annual income to 107 ranch operations would be increased by $339,660 over the current level (table 3-53). In addition, one grazing association would have an increase in annual income of $10,110. Increases in income would occur over time as allotment management plans were implemented and vegetative manipulation projects completed. Increases as described above would occur in the short term and be sustained at that level in the long term.

Even with accelerated livestock forage development, however, 100 ranch operations would experience decreases in income of $165,810 annually in the short term and the long term (table 3-52), and five grazing associations would have decreased annual income totaling $14,780. Of the 216 ranches, nine would not be affected by this alternative.

Overall, the 207 ranch operations affected by this alternative would have an increase in income of $233,850 annually. The average increase in income for the 25 small commercial ranches would be 14.5 percent above the current level. This would help these small operators improve their standard of living and help them pay for depreciation and maintenance costs that might have been deferred over the years by a low level of ranch income.

At the same time, however, 21 other small commercial ranches would suffer an average reduction in annual income of 12.5 percent. A few of these small operators would probably be forced out of business. Others would be forced into off-ranch employment, if they were not already employed off the ranch.

The value of grazing permits and thus the value of ranches would be increased substantially under Alternative D. The grazing permit values of 107 ranches would be increased by $4,107,510 (table 3-54). One grazing association would have an increase of $56,880 in grazing permit values. The permit values for 100 ranches would be reduced by a total of $913,770.

The overall impact on the 207 ranches would be an increase in permit values of $3,104,740, and the six grazing associations would have a decrease of $29,280. An increase in permit values contributes to the value of the associated ranch but results in no change in cash flow. Increased permit values would have a limited impact on the amount that a ranch operator might borrow in the long-term funds. The nature of this impact is described in the permit value section of the discussion of the proposed action.

There would be a small increase in hired ranch employees under Alternative D. The increase would be the equivalent of six fulltime hired employees in both the short term and long term. This would be an increase of about 1 percent over the current level of 480.

Under this alternative, personal property tax payments would increase by an estimated $2,200, which is an approximate increase of less than 1 percent from the current level of $490,000. The increase would be generated by the increased number of livestock on ranches with increased BLM AUMs.

E. No Action

Under Alternative E, the same number of BLM AUMs would be authorized in the future as in the present. Therefore, at least "on paper," there would be no impacts. Without implementation of

TABLE 3-51

ESTIMATED SHORT-TERM AND LONG-TERM IMPACTS OF THE IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT ALTERNATIVE ON PERMIT VALUES[a]

Ranch Size Category	Grazing Reductions			Grazing Increases		
	Number of Ranches	Avg.Reduction Per Ranch	All Ranches	Number of Ranches	Avg.Increase Per Ranch	All Ranches
Small commercial	45	$ 6,660	$ 299,700	0	$ 0	$ 0
Medium commercial	69	15,570	1,074,330	0	4,410	44,100
Large commercial	50	28,080	1,404,000	1	11,880	11,880
Very large commercial	26	68,850	1,790,100	2	2,700	5,400
TOTAL	190		$4,568,130	13		$ 61,380

SOURCE: BLM, 1979.

NOTE: The net decrease in permit value for all affected ranches in the study area would be $4,506,750. In addition, six grazing associations would have reductions in grazing permit values of $316.170.

a. Based on permit value of $90 per AUM. It is assumed that the relative value of the permit would stay the same. If grazing fees increased to fair market value, relative values of the permits could decrease.

TABLE 3-52

ESTIMATED SHORT-TERM AND LONG-TERM NEGATIVE IMPACTS OF THE ACCELERATED LIVESTOCK FORAGE DEVELOPMENT ALTERNATIVE ON NET ANNUAL RANCH IMCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Reduction in BLM AUMs per Ranch	Average Percentage of Reduction per Ranch[a]	Average Annual Net Income per Ranch	Reduced Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	21	47	4.3	$ 6,340	$ 790	12.5	$ 16,590
Medium commercial	200-499	325	37	70	2.5	41,290	1,260	3.1	46,620
Large commercial	500-999	625	30	140	2.0	84,180	2,300	2.7	69,000
Very large commercial	1,000 or greater	2,000	12	198	1.0	218,050	2,500	1.3	33,600
TOTAL			100						$165,810

SOURCE: BLM, 1979.

NOTE: In addition, five grazing associations would be reduced 924 AUMs for a decrease in net annual income of $14,780. Impact would be the same at the initial stocking level and in the year 2010.

a. Percent reduction in ranches' total grazing (7 month period) due to the reduction in BLM AUMs.

b. Decrease in annual income projected in current dollars.

TABLE 3-53

ESTIMATED SHORT-TERM AND LONG-TERM POSITIVE IMPACTS OF THE ACCELERATED LIVESTOCK FORAGE DEVELOPMENT ALTERNATIVE ON NET ANNUAL RANCH INCOME

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Increase in BLM AUMs per Ranch	Average Percentage of Increase per Ranch[a]	Average Annual Net Income per Ranch	Increased Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	25	101	9.2	$ 6,340	$ 920	14.5	$ 23,000
Medium commercial	200-499	325	44	271	9.1	41,290	2,410	5.8	106,040
Large commercial	500-999	625	22	413	7.2	84,180	3,770	4.4	82,940
Very large commercial	1,000 or greater	2,000	16	1,319	6.7	218,050	11,730	5.4	187,680
TOTAL			107						$ 399,660

SOURCE: BLM, 1979.

NOTE: In addition, one grazing association would be increased 632 AUMs for an increase in net annual income of approximately $10,110.

a. Percentage increase in ranches' total grazing (7 month period) due to the increase in BLM AUMs.

b. Increase in annual income projected in current dollars.

TABLE 3-54

ESTIMATED SHORT-TERM AND LONG-TERM IMPACTS OF THE ACCELERATED LIVESTOCK FORAGE DEVELOPMENT ALTERNATIVE ON PERMIT VALUES

Ranch Size Category	Grazing Reductions			Grazing Increases		
	Number of Ranches	Avg.Reduction Per Ranch	All Ranches	Number of Ranches	Avg.Increase Per Ranch	All Ranches
Small commercial	21	$ 4,230	$ 88,830	25	$ 9,090	$ 227,250
Medium commercial	37	6,300	233,100	44	24,390	1,073,160
Large commercial	30	12,600	378,000	22	37,170	817,740
Very large commercial	12	17,820	213,840	16	118,710	1,899,360
TOTAL	100		$ 913,770	107		$4,017,510

SOURCE: BLM, 1979.

NOTE: The net increase in permit value for all affected ranches in the study area would be $3,103,740. In addition, five grazing associations would have reductions in permit values of $83,160 and one would have an increase of $56,880. The impact would be the same at the initial stocking level and for the year 2010.

a. Based on permit value of $90 per AUM. It is assumed that the relative value of the permit would stay the same. If grazing fees increased to fair market value, relative values of the permits could decrease.

AMPs, range condition on BLM land would continue to deteriorate in many areas, and thus the real amount and quality of forage available to livestock would decrease. This would have a real dollar impact on ranch income, but the nature and extent of the impact cannot be estimated.

There would probably not be any real impact on permit values because ranch operators would continue to show, "on paper," the same number of AUMs authorized in the future as now. There probably would be some real impact on hired ranch employment and personal property taxes, but these cannot be estimated because the BLM would not force any ranch operators to reduce the size of their livestock herds.

F. Elimination of Livestock Grazing from Public Lands

The impact on ranch income from Alternative F is shown in table 3-55. The overall reduction in income to the 216 ranches that lease BLM grazing would be $1,862,680 annually. This is an estimated reduction of about 13 percent in the current annual income of $14,704,220. In addition, the income of nine grazing associations would be reduced annually by $109,240. Since the elimination of grazing would be permanent, the long-term impact would be the same as the short-term impact.

The percentage of dependency of a ranch on BLM grazing is a major indicator of whether the ranch would be able to continue operation if all the BLM AUMs were eliminated. Of the 216 ranch operations, 187 are from slightly to 20 percent dependent on BLM forage for seven months of their grazing requirement. These operations would probably continue in business by purchasing hay or reducing herd size. Twenty-nine ranches are from 21 percent to 60 percent dependent on BLM grazing. Of these, 18 are in the small and medium commercial size categories; these would probably be forced out of business because of sustained negative net ranch income. Some of the 11 large and very large commercial ranches probably would continue to operate, but with much reduced net ranch income. In some instances, even these ranches would be forced out of business because the loss of BLM grazing would destroy the ranch operation as an economically viable unit.

Elimination of BLM grazing, as shown in table 3-56, would reduce permit values for the 216 ranches by the full amount of their current value of $10,536,480 (based on estimated permit value of $90 per AUM). For ranches that are heavily dependent on BLM AUMs, the overall reduction in ranch value could be considerably more than the $90 per AUM, because elimination of the BLM grazing would virtually destroy the ranch as an economic unit, forcing it to be sold in parcels on a per-acre basis, probably to adjoining landowners.

Reduction in hired ranch employment that would be caused by total elimination of BLM grazing is estimated to be the equivalent of 33 fulltime workers. This would be approximately a 7 percent reduction in hired ranch employment from the current level of 480. Reduction in tax revenue caused by reductions in livestock numbers under Alternative F would be an estimated $29,500. This would be approximately a 6 percent reduction from the current level of $490,000.

Conclusions

Table 1-9 summarizes direct economic impacts by alternative in the short term and the long term. The overall impact on total ranch income from grazing decreases/increases would not be great under any alternative except possibly Alternative F. Under that alternative the total ranch income would be reduced by $1,862,680, which would be a 13 percent decrease from the $14,764,220 level now being generated by the 216 ranches under study.

Under the other alternatives, total ranch income would not be decreased any more than 5 percent or increased any more than 2 percent. These overall figures are somewhat deceiving, however, with respect to impacts on individual ranches. In many cases, the economic impacts on individual ranches would be extremely severe. The impacts under some alternatives would be severe enough to force many operators out of business, even though they would try to stay in business at almost any cost. They would try to stay in business by accepting no pay for their labor, receiving no return on their investments, and even subsidizing their ranches with off-ranch income.

The impact on permit values directly parallels the impact on ranch income under each alternative. When permit values decrease, ranch value decreases; when permit values increase, ranch value increases. It is important to note, however, that changes in permit values have no effect on the cash flow position of affected ranches. The changes in permit values would be realized as cash only if and when the ranch was sold.

Judged in terms of the percentage of change

TABLE 3-55

ESTIMATED SHORT-TERM AND LONG-TERM NEGATIVE IMPACTS IN NET ANNUAL RANCH INCOME FROM THE ALTERNATIVE TO ELIMINATE LIVESTOCK GRAZING FROM PUBLIC LANDS

Ranch Size Category	Size by Number of Brood Cows	Average Number of Brood Cows	Number of Ranches	Average Reduction in BLM AUMs per Ranch	Average Percentage of Reduction per Ranch[a]	Average Annual Net Income per Ranch	Reduced Annual Income[b]		
							Average per Ranch	Percentage per Ranch	All Ranches
Small commercial	1-199	130	50	133	13.0	$ 6,340	$ 2,225	35.1	$ 111,150
Medium commercial	200-499	325	84	363	12.5	41,290	6,510	15.8	546,840
Large commercial	500-999	625	52	625	12.9	84,180	10,270	12.2	534,040
Very large commercial	1,000 or greater	2,000	30	1,581	7.0	218,050	22,355	10.3	670,650
TOTAL			216						$1,862,680

SOURCE: BLM, 1979.

NOTE: In addition, nine grazing associations would be reduced 6,785 AUMs for a reduction in annual income of $109,240. Impact would be the same at the initial stocking level and in the year 2010.

a. Percentage reduction in ranches' total grazing (7 month period) due to the reduction in BLM AUMs.

b. Decrease in annual income projected in current dollars.

TABLE 3-56

ESTIMATED SHORT-TERM AND LONG-TERM IMPACTS ON PERMIT VALUES FROM THE ALTERNATIVE TO ELIMINATE LIVESTOCK GRAZING FROM PUBLIC LANDS[a]

Ranch Size Category	Grazing Reductions		
	Number of Ranches	Average Reduction Per Ranch	All Ranches
Small commercial	50	$ 11,970	$ 598,500
Medium commercial	84	32,670	2,744,280
Large commercial	52	56,250	2,925,000
Very large commercial	30	142,290	4,268,700
Total	216		$10,536,480

SOURCE: BLM, 1979.

NOTE: In addition, nine grazing associations would have reductions in permit values of $610,650.

a. Based on permit value of $90 per AUM. It is assumed that the relative value of the permit would stay the same. If grazing fees increased to fair market value, relative values of the permits could decrease.

from the current situation, employment and personal property tax impacts would not be significant under any alternative.

Regional Economic Conditions

The following analysis, displayed by alternative, utilizes the BLM Dynamic Regional Analysis Model (DYRAM) to forecast changes in regional earnings. The model uses historic input/output relationships among economic sectors to generate expected changes in total earnings within the study area. Appendix 23 contains a discussion and schematic outline of this model. Since this analysis presents expected changes in regional economic conditions within the study area, it necessarily draws upon some of the findings presented earlier in this section concerning operator-specific impacts.

Earnings

Input to the model consists of direct changes in study area earnings resulting from the BLM actions associated with each of the six alternatives being considered. The BLM-initiated changes associated with each alternative can be aggregated into the following three primary change items: (1) cost of implementing range developments during the four-year construction period (1981-1984), including equipment and labor; (2) changes in ranch earnings due to changes in regional red meat production that would result from changes in forage availability; and (3) the maintenance cost of range developments.

Item (1) consists of expenditures by the federal government to the contract construction sector during the four-year construction period. Expenditure values were converted to earnings for the contract construction sector by dividing expenditures by the expenditure/earnings coefficient of 2.037. Values in item (2) come from the operator-specific analysis presented earlier in this section. Item (3) involves consideration of several different cost factors associated with long-term (through the year 2010) maintenance of the range developments suggested for each alternative. Appendix 23 shows the specific cost factors associated with maintenance of the range developments being considered under each alternative.

Table 3-57 presents the direct regional changes in earnings by alternative as discussed above. Under Alternative A, for example, an annual earnings increase of $172,000 per year would occur in the contract construction sector (sector 150) because of expenditures by the federal government in that sector during the construction period from 1981 to 1984. In 1985, direct reductions in ranchers' earnings (sector 013) under Alternative A would occur (minus $308,000), and annual expenses by the government (sector 910) for maintenance of the proposed action would be plus $154,000. By the year 2010, impacts to ranchers' earnings would become positive (plus $37,000) because of increased forage availability, and annual maintenance expenses would remain equal to those in 1985 (plus $154,000). The remainder of table 3-57 shows corresponding direct earnings figures for the other alternatives.

Inter-industry earnings multipliers calculated by DYRAM (Appendix 23) are used to determine the total regional direct and indirect earnings impacts by alternative. These earnings multipliers are based on the understanding that for every dollar of earnings gained or lost in, for example, the livestock sector, the study area would gain or lose approximately $1.54 in earnings. Applying these sector-specific multipliers to the sectors that are expected to gain or lose earnings results in estimates of the total earnings change (both direct and indirect) over the entire study area by year. Table 3-58 presents the changes in total study area earnings by alternative for selected years through 2010.

Total study area earnings increased approximately 8 percent per year during the period from 1972 to 1976 (table 2-34, chapter 2). Assuming that this same earnings growth rate occurred during 1976 to 1979, it is possible to estimate total study area income for 1979 at approximately $485,638,000. Table 3-58 presents total changes in study area earnings resulting from each of the alternatives (1979 dollars) as a percentage of estimated total study area earnings.

Alternative F, Elimination of Livestock Grazing from Public Lands, would result in the greatest negative change (minus 0.6 percent) in total long-term study area earnings. This reduction would result primarily from direct reductions in earnings to the livestock sector. Alternative D, Acclerated Livestock Forage Development, would generate the greatest positive percentage change (0.12 percent) in total long-term study area earnings because of the direct increase in earnings in the livestock sector from this alternative. The remaining alternatives would result in study area earnings changes falling between these two extremes.

TABLE 3-57

DIRECT CHANGES IN EARNINGS IN STUDY AREA BY ALTERNATIVE AND SECTOR
(thousands of 1979 dollars)

		Alternative					
YEAR	SECTOR (same for all alternatives)[a]	A: Proposed Action	B: Limited Action	C: Improved Watershed/ Wildlife Values	D: Accelerated Forage Development	E: No Action	F: Eliminate Livestock Grazing
1981	150	+172	+ 24	+529	+620	+13	+938
1982	150	172	24	-529	+620	+13	+938
1983	150	172	24	+529	+620	+13	+938
1984	150	172	24	-529	+620	+13	+938
1985	910	+154[b]	+ 4	+ 76	+130	--	+ 54
	013	-308	-308	-858	+229	--	-1972
1990	910	+154[b]	+ 4	+ 76	+130	--	+ 54
	013	-239	-290	-858	+229	--	-1972
2000	910	+154[b]	+ 4	+ 76	+130	--	+ 54
	013	- 32	-255	-858	+229	--	-1972
2010	910	+154[b]	+ 4	+ 76	+130	--	+ 54
	013	+ 37	-219	-858	+229	--	-1972

SOURCE: Montana State Office and Butte District Office, BLM, 1979.

a. Sector designations: 150 = contract construction; 910 = federal government; 013 = livestock.

b. Includes 6 additional GS-9 range conservationist positions at $17,000 per year (10/79 pay scale).

TABLE 3-58

TOTAL CHANGES IN EARNINGS IN THE STUDY AREA BY ALTERNATIVE
(thousands of 1979 dollars)

	Alternative											
Year	A	Estimated Percentage of Change[a]	B	Estimated Percentage of Change[a]	C	Estimated Percentage of Change[a]	D	Estimated Percentage of Change[a]	E	Estimated Percentage of Change[a]	F	Estimated Percentage of Change[a]
1981	213	b	30	b	655	b	768	0.16	16	b	1161	0.2
1982	213		30		655		768	0.16	16		1161	0.2
1983	213		30		655		768	0.16	16		1161	0.2
1984	213		30		655		768	0.16	16		1161	0.2
1985	-187		-468		-1181	-0.2	+596		No Change		-2939	-0.6
1990	- 81		-440		-1181	-0.2	+596	b	No Change		-2939	-0.6
2000	239		-386		-1181	-0.2	+596		No Change		-2939	-0.6
2010	345		-331		-1181	-0.2	+596		No Change		-2939	-0.6

SOURCE: BLM, Montana State Office, 1979.

NOTE: Direct and indirect changes are shown.
Inter-industry earnings multipliers for the study area are as follows:
contract construction - 1.238
livestock - 1.542
federal government - 1.868

a. Measured against estimated total study area earnings for 1979 of approximately $485,638,000.

b. Percentage changes are not shown in cases where they are between - 0.15% and + 0.15%.

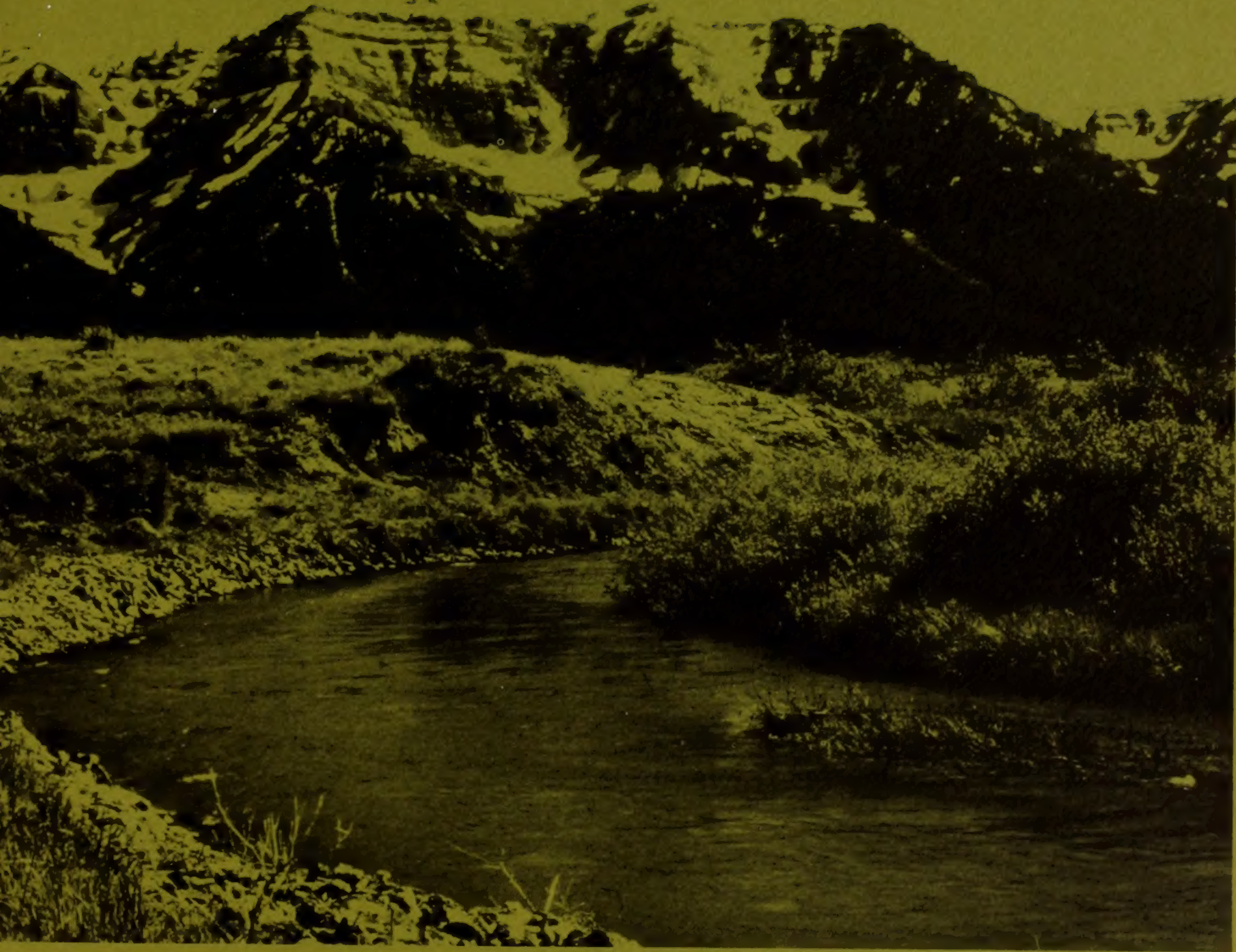
Employment

Total employment impacts resulting from the alternatives would be negligible throughout the study area. Table 1-9, chapter 1, shows the employment changes expected by alternative in the short term (1981 to 1984). Alternative F would create the largest employment increases (additional BLM personnel); during the short term (the 1981-1984 construction period) there would be 9 permanent and 30 temporary additional positions. Only the proposed action would generate additional employment (6 new BLM positions) over the long term. The preceding operator-specific impact section discusses direct employment impacts on ranchers by alternative; it shows that Alternative F would generate the largest direct decrease in ranching employment (33 fewer jobs) over the long term from 1985 to 2010.

Using an employment multiplier of 1.4 for the study area (i.e., 1.4 total employment positions gained/lost for each direct position gained/lost), it is estimated that total long-term employment impacts in the study area for Alternative A (greatest employment gain) would be a gain of 0.02 percent over the estimated 1979 total study area employment of 28,000, and that Alternative F (greatest employment loss) would cause a reduction of 0.2 percent.

Conclusions

The total direct and indirect impacts on earnings or employment in the study area would be significantly less than 1 percent of total estimated 1979 earnings and employment levels. Consequently, the level of overall earnings/employment impacts within the four-county study area would be insignificant during both the long term and the short term for all alternatives.



CONSULTATION AND COORDINATION/PREPARERS

CHAPTER

4

CONSULTATION AND COORDINATION

The Mountain Foothills Draft Environmental Impact Statement (EIS) was prepared by Dillon Resource Area, Butte District, and Montana State Office specialists with expertise in range management, wildlife, recreation, forestry, landscape architecture, archaeology and history, soils, watershed management, hydrology, geology, and economics. Writing of the EIS was begun in April 1979; however, a complex process over a three-year period preceded the writing phase. This process included resource inventory, land use planning, public and other agency coordination, and preparation of allotment management plans. Consultation and coordination with agencies, organizations, and individuals occurred in a variety of ways throughout the preparation process.

PRELIMINARY CONSULTATION

Update and revision of the existing land use plans for the EIS area (Management Framework Plan, or MFP) began in 1977. Resource data gathered in the concurrent development of allotment management plans was recycled into the resource data base used in the land use planning process. During this update process, federal, state, and local organizations were contacted for assistance. All public land users and other interested groups and individuals were notified through letters and news releases of the initiation of the planning system updates. In late 1978 and early 1979, public information meetings or open houses were held to present the multiple use recommendations from the MFP. Open houses were held in Dillon, Butte, Sheridan, Ennis, and Lima. Discussions of the Mountain Foothills EIS with interested parties occurred throughout the update proces.

Preparation of allotment management plans for the EIS area began in 1976. Nearly all livestock operators were contacted during preparation of draft allotment management plans, and most were contacted after the drafts were complete. All AMPs were available for review by livestock operators and public interest groups. All livestock operators in the Dillon Resource Area were advised by letter of the effect, if any, of the proposed AMP on their operation. The AMPs will remain in draft form until a decision is made on the content and adequacy of the Mountain Foothills EIS. Prior to implementation of the AMPs, close coordination and cooperation with the affected livestock operators will be necessary.

PUBLIC INVOLVEMENT AND CONSULTATION DURING DEVELOPMENT OF THE DRAFT EIS

A news release was distributed in October 1975 discussing initiation of the planning process that would lead to preparation of grazing EISs on all public lands in Montana. The news release indicated that the Mountain Foothills EIS would be the second of eight such studies to be completed in the state by 1988, with the Missouri Breaks EIS completed in 1979.

Meetings included entities such as various grazing associations, the Montana Public Lands Council, Montana Stockgrowers Association, and several chambers of commerce.

The State Historic Preservation Officer and the Advisory Council on Historic Preservation will be given an opportunity to review the draft EIS.

Informal consultation with the U.S. Fish and Wildlife Service regarding threatened and endangered species took place throughout the EIS preparation process. The Billings area office of the Fish and Wildlife Service informally reviewed all draft sections pertaining to threatened and endangered species and indicated that consideration of such species was adequate.

AGENCIES AND ORGANIZATIONS CONSULTED

The EIS team consulted with and/or received input from the following organizations during the writing phase of the draft EIS:

Federal Agencies

U.S. Department of Agriculture
  Economics, Statistics, and Cooperatives Service
  Forest Service
  Soil Conservation Service
Farmers Home Administration
Fish and Wildlife Service

State Agencies and Organizations

Montana Agricultural Experiment Station
Montana Cooperative Extension Service
Montana Department of Community Affairs
Montana Department of Fish, Wildlife, and Parks
Montana Department of Natural Resources and Conservation

Montana Department of State Lands
Montana Historical Society
Montana State University
University of Montana
Western Montana College

Special Interest Groups

Federal Land Bank Association
Montana Public Lands Council
Montana Stockgrowers Association

Further comments are expected from public meetings scheduled for early 1980. Copies of the draft environmental impact statement are available for public review at BLM offices in Billings, Dillon, Butte, and Missoula, and copies of the draft are available at public libraries in all communities in the study area.

COMMENTS REQUESTED

Comments on the draft EIS have been requested from the following agencies and interest groups:

Federal Agencies

- Advisory Council on Historic Preservation
- Department of Agriculture
  - Forest Service
  - Soil Conservation Service
- Department of the Army
  - Corps of Engineers
- Department of Commerce
- Department of the Interior
  - Bureau of Indian Affairs
  - Bureau of Mines
  - Fish and Wildlife Service
  - Geological Survey
  - Heritage Conservation and Recreation Service
  - National Park Service
  - Water and Power Resource Service
- Environmental Protection Agency
- Science and Education Administration

Congressional Offices

Office of Congressman Marlenee
Office of Congressman Williams
Office of Senator Baucus
Office of Senator Melcher

State Agencies

Montana Association of State Grazing Districts
Montana Department of Community Affairs
Montana Department of Fish, Wildlife, and Parks—Bozeman Office
Montana Department of Health and Environmental Services, Water Quality Bureau
Montana Department of Natural Resources and Conservation
Montana Department of State Lands
Montana Governor's Office
Montana Historical Society
Old West Regional Commission

County Commissioners and Planning Boards

Beaverhead County
Deer Lodge County
Madison County
Silver Bow County

Other Organizations

Ada County Fish and Game League (Idaho)
Alaska Basin Grazing Association
American Fisheries Society
American Horse Protective Association
Audubon Society
Bannack Grazing Association
Big Hole Grazing Association
Defenders of Wildlife
Friends of the Earth
The Humane Society of the United States
Garden Creek Stock Association
Izaak Walton League of America
Madison Valley Holding Pasture Association
Montana Farm Bureau
Montana Farmers Union
Montana Historical Society
Montana Public Lands Council
Montana Stockgrowers Association
Montana Wilderness Association
Montana Wildlife Federation
Montana Woolgrowers Association
Moorse Creek Grazing Association
Moose Camp Creek Stock Association
National Council of Public Land Users
Natural Resources Defense Council
Nevada Outdoor Recreation Association, Inc.
Northern Plains Resource Council
Oregon Environmental Council
Pacific Legal Foundation
Public Lands Council
Robb Creek Cattle Association
Sierra Club
Snowline Grazing Association
Society for Range Management
Waterloo Cooperative State Grazing District
Wild Horse Organized Assistance
Wilderness Society
Wildlife Management Institute

Wildlife Society, Montana Chapter
Wise River Stock Association

Individuals

James Morgan (plaintiff in Natural Resources Defense Council, Inc., et al. vs. Rogers C.B. Morton et al.)

PREPARERS OF THE MOUNTAIN FOOTHILLS ENVIRONMENTAL IMPACT STATEMENT

RESEARCH/WRITING/GRAPHICS

Project Manager. R. Gregg Berry, Chief, Division of Planning and Environmental Coordination, Butte District. Overall coordination of the document. A.S., Olympic College, Bremerton, Washington; B.S., Wildlife Biology, M.S., Range Management, Washington State University. Previously Range Conservationist, Susanville District, California; District Biologist, Bakersfield, California; Natural Resource Specialist, Montana State Office, Billings. Worked on vegetation and wildlife sections of Alaska Natural Gas Transportation System EIS; responsible for wildlife section of SOHIO EIS, vegetation sections of Colstrip Transmission Environmental Report, Montana, and Missouri Breaks Grazing EIS, Montana.

Planning System Interrelationships. Delon Potter, Forester, Dillon Resource Area. B.S., Forestry-Range Science, Utah State University. Previously prepared forestry section of EIS on Crow Ceded Coal Lease Tracts 2 and 3 for Bureau of Indian Affairs.

Topography, Geology, Minerals. Thomas L. Durst, Geologist, Dillon Resource Area. B.A., Geology, University of South Dakota; M.S., Ph.D., Geology, Case Western Reserve University, Cleveland, Ohio.

Soils. William C. Fanning, Soil Scientist, Dillon Resource Area. Responsible for soils sections. B.S., Soil Science, California Polytechnic State University.

Water Resources. David A. Lomas, Hydrologist, Butte District. B.S., Forestry, Hydrology option, Michigan Technological University; M.S., Watershed Science, Utah State University.

Vegetation. Timothy C. Fay, Surface Protection Specialist, Butte District. Overall responsibility for vegetation sections. A.A.S., Forestry, Paul Smiths College, New York; B.S., Forestry, New York State College of Forestry. Previously Assistant Area Manager, Salmon, Idaho; Range and Watershed Staff Specialist, Lewistown, Montana.

L.I. Hagener, Range Conservationist, Dillon Resource Area. Prepared background information for vegetation type mapping, parts of description of methodology for determining range condition and stocking rates (Appendix 2); assisted in writing vegetation sections. B.S., Range Science, Montana State University.

William Torgersen, Staff Forester, Butte District. Responsible for forest portion of vegetation sections. B.S., Forest Resource Management, University of Minnesota. Project leader on Dillon Sustained Yield Timber Analysis.

Terrestrial Wildlife. Lewis H. Myers, Wildlife Biologist, Dillon Resource Area. Overall responsibility for terrestrial wildlife sections. B.S., Game Management, Humboldt State University, California; M.S., Zoology, University of Nevada. Originated contract studies with University of Montana on nongame wildlife and water quality. Previously with Nevada Department of Fish and Game, Alaska Department of Fish and Game, and U.S. Forest Service.

James W. Roscoe, Wildlife Biologist, Dillon Resource Area. Prepared sections on waterfowl and moose; prepared tables and maps for other species, compiled data, estimated populations, and defined habitat areas. B.S., Wildlife, M.S., Fisheries, Colorado State University. Previously worked on an EIS with U.S. Army Corps of Engineers, St. Paul, Minnesota; two years waterfowl management at Red Rock Lakes National Wildlife Refuge and Lima Reservoir, Centennial Valley, Montana.

Jon M. Sadowski, Wildlife Biologist, Dillon Resource Area. Prepared sections on blue grouse, sage grouse, antelope, nongame species, and threatened and endangered wildlife. B.S., Wildlife Management, Humboldt State University, California.

Aquatic Wildlife. Paul Peek, Fisheries Biologist, Butte District. B.S., Fisheries Science, Humboldt State University, California; B.A., Business Administration, Augustana College, Sioux Falls, South Dakota. Worked on fisheries section of Hot Desert EIS, Utah.

Wilderness. Darrell L. McDaniel, Outdoor Recreation Planner, Butte District. B.S., Forestry, University of Montana.

Recreation and Scenic Values. Bruce F. Botsford, Outdoor Recreation Planner, Dillon Resource Area. B.S., Conservation, Wisconsin State University. Ten years experience as Outdoor Recreation Planner for Heritage Conservation and Recreation Service, including writing and reviewing recreation-oriented environmental statements.

Cultural Resources. Blaine A. Miller, Archaeologist, Butte District. B.S., History, Weber State College, Utah; M.A., Archaeology, Brigham Young University, Utah. Initiated the cultural resource inventory for the Missouri Breaks Grazing EIS, Montana.

Livestock Grazing. Tom Whitmer, Range Conservationist, Dillon Resource Area. Overall responsibility for landownership and livestock grazing sections. B.S., Biology, Eastern Montana College; graduate study in range science, Montana State University.

Chris E. Nemeth, Range Conservationist, Dillon Resource Area. Prepared parts of description of methodology for determining range condition and stocking rates (Appendix 2). B.S., Forestry, with honors, University of Montana. M.S., Range Science, Montana State University.

Social Conditions. Sexton G. Orms, Jr., Sociologist, Montana State Office. Prepared sections on social conditions, attitudes, and impacts on community. B.A., Sociology, Arkansas Polytechnic College.

Range-Related Economics. Donald D. Waite, Economist/Planning Coordinator, Montana State Office. Prepared analysis of immpacts on ranch income, permit values, ranch employment, and ranch taxes. B.S., Agricultural Business Economics, Montana State University; M.S., Resource Economics and Planning, Colorado State University; graduate work in economics, American University, Washington, D.C. Previously conducted numerous range and watershed economic studies, interagency grazing fee study; served as consultant on economics of range and livestock development to Saudi Arabian government.

Charles E. Nelson, Land Use Planner, Branch of Planning, Montana State Office. Assisted in design of social/resource attitudes survey; conducted some citizen interviews and wrote summary report. B.A., Geography, Hastings College, Nebraska; M.S., Natural Resources, Oregon State University; Ph.D., Geography, University of Nebraska.

Regional Economic Analysis. Loren Cabe, Regional Economist, Montana State Office. B.A., Economics, Mathematics, University of Montana; M.A., Economics, University of Washington. Previously instructor of economics at University of Washington and at Shoreline Community College, Seattle; served as work group leader, economic and social conditions, West Central North Dakota Regional EIS.

Graphics. Robert Allen, Visual Information Specialist, Montana State Office. Coordinated graphics for document. Studied fine arts at Kent State University, Ohio. Previously served as graphics coordinator for several EIS documents over the past four years.

MONTANA STATE OFFICE REVIEW TEAM

Montana State Office Coordinator. Larry Pointer, Agronomist. A.A., Botany, Sheridan College, Wyoming; B.S., Genetics, Iowa State University; M.S., Agronomy and Plant Genetics, University of Minnesota; M.A., Librarianship/Archives Speciality, University of Denver. Previous EIS experience on soils and reclamation sections, West Central North Dakota Energy Development EIS; soils section, Missouri Breaks Grazing EIS, Montana. Formerly biology and agronomy instructor in junior colleges.

W. David Darby, Environmental Program Manager. Responsible for statewide environmental program direction. B.A., English Literature, Swarthmore College, Pennsylvania; M.A., International Relations, American University, Washington, D.C. Coordination and direction of BLM planning and environmental activities for past six years.

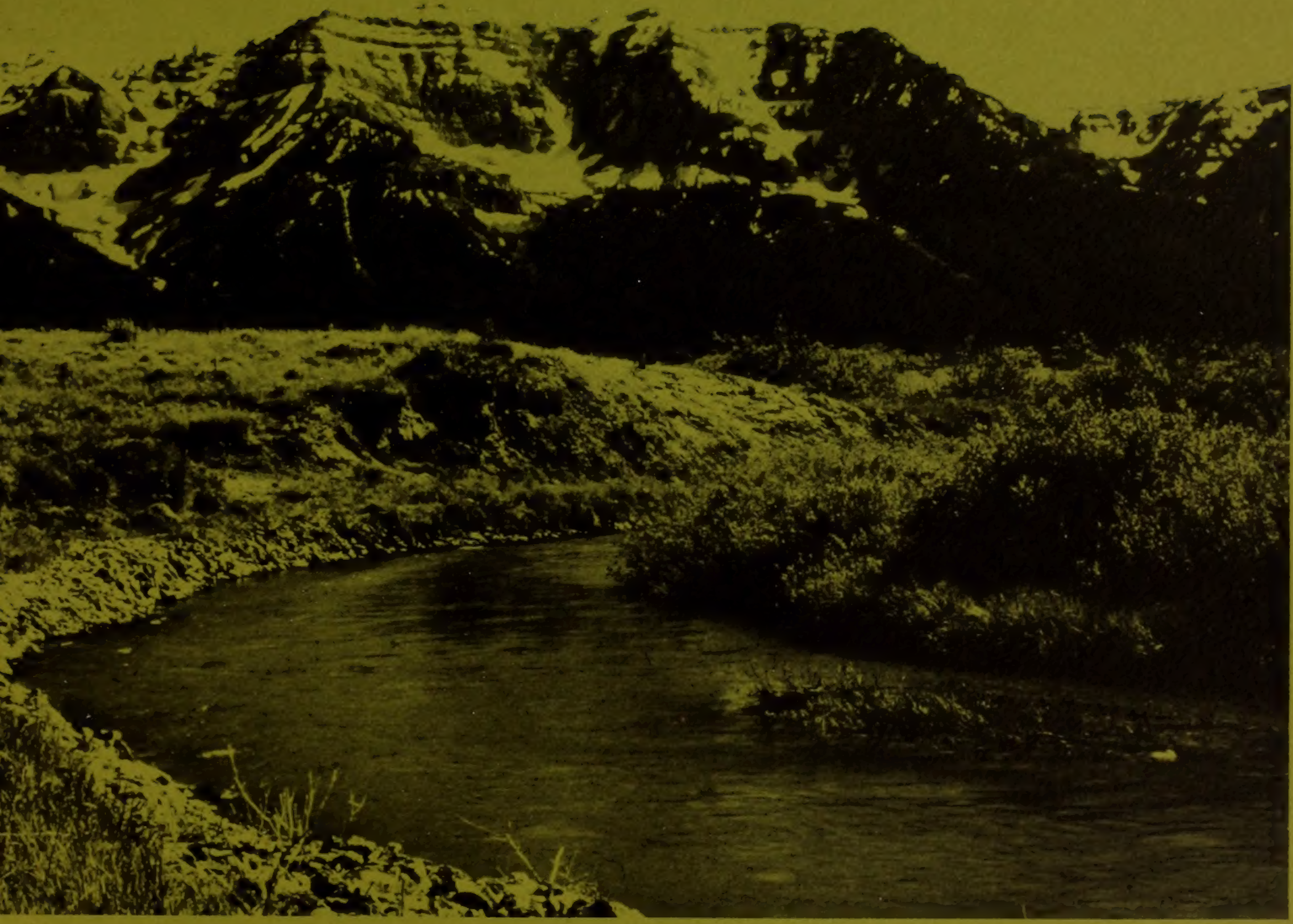
Lloyd F. Emmons, Botanist. B.S., Agronomy, Oklahoma State University; B.A., Anthropology, Fort Lewis College, Colorado; two years graduate work in range science, University of Nevada. Previously prepared vegetation, soils, and reclamation sections of West Central North Dakota coal study; livestock section of Missouri Breaks Grazing EIS, Montana; project leader on Glenharold Mine Technical Examination and Environmental Assessment, Worland, Wyoming.

Jerome W. Jack, Planning Coordinator. Responsible for review and guidance on development of recreation section and portions of the affected socioeconomic environment section. B.S., Agricultural Business and Economics, University of Wyoming; M.S., Land Use Planning, University of Wisconsin. Previously Recreation Specialist in Miles City District, Montana, and preparer of socioeconomic section of Tuledad-Homecamp Grazing EIS, California.

Vernon M. Taylor, Supervisory Range Conservationist, Miles City District. B.S., M.S., Animal Science, Montana State University. Seventeen years as a range conservationist.

Duane Whitmer, Range Conservationist. B.S., Wildlife, University of Montana; graduate work in range science at Montana State University. Participated in development of Missouri Breaks Grazing EIS; fifteen years in BLM range management.

Tom O. Yochem, Hydrologist. B.A., Geology, State University of New York. Prepared water resources sections of Glenharold Mine Technical Examination and Environmental Assessment and West Side Irrigation Project, Wyoming; team leader, Graham Coal Lease Environmental Assessment, Worland, Wyoming; three oil and gas environmental assessments, Wyoming.



APPENDIXES

APPENDIXES

APPENDIX 1: DATA ON INDIVIDUAL ALLOTMENTS

Users' Key

Grazing System = allotments proposed to have rest-rotation (RR), deferred (D), deferred rotation (DR), alternate rest (AR), short-duration, high intensity (SDHI), seasonal (S), and unlicensed and/or unallotted (U) grazing systems.

Allotment Name = the name used by the BLM for AMP identification.

Allotment Number = the AMP identification number that will be used in the BLM's Range Management Automated System.

Acres = the three subheadings under this heading indicate the number of acres of BLM land, the number of acres of nonpublic land, and the total number of acres in each allotment.

PAS = the number of pastures in the allotment. Where two numbers are shown (such as 3,1), this indicates a combination grazing system with a different number of pastures for each type of system. For example, an entry of RR,AR and 3,1 indicates a three-pasture rest-rotation system with alternating rest on one pasture.

Kind of Livestock = type of livestock grazing on the allotment. These may be cow-calf pairs (C), yearlings (Y), sheep (S), or horses (H). Where two kinds of livestock are shown (such as C,Y), this indicates a combination of grazing animals.

Proposed Season of Use = dates when it is proposed that livestock be grazing the allotment.

BLM Only--Livestock Forage Production (AUMs) = the number of animal unit months as follows:

Range Survey = the number of AUMs identified by the most recent complete range survey. All allotments were inventoried from 1976 to 1978 with the ocular reconnaissance method. The "Total AUMs" subheading represents forage that could be grazed by livestock. "Usable AUMs" represents forage that can be grazed by livestock after utilization and suitability deductions.

Current Permitted Use = the current number of AUMs licensed according to a ten-year permit/lease schedule via the Range Management Automated System.

Average Actual Use = an average of all available information for each AMP. Operators who use existing AMPs are sent questionnaires about the numbers of stock and season of grazing. From their data, the AUMs for each year are calculated.

Proposed Management = the proposed grazing management program (Alternative A). The "Initial" column subheading shows the level of livestock grazing proposed for the beginning phases of this alternative for AMP and non-AMP allotments. The "25-Year Projection" indicates the number of AUMs available, assuming that 25-year objectives are met.

Forage Potential = an estimate in AUMs of the potential forage available in an allotment based on soil survey data.

									BLM only--Livestock Forage Production (AUMs)						
			Acres						Range Survey*				Proposed Management		
Grazing System	Allotment Name	Allotment Number	BLM	Other	Total	P A S	Kind of Livestock	Proposed Season of Use	Total	Usable	Current Permitted Use	Average Actual Use	Initial	25-Year Projection	Forage Potential
Existing AMPs with RR Grazing System															
RR	Pine Creek	0001	1,988	6,748	8,736	1	C	6/1-10/15		405	405	280	405	457	693
RR	Selway	0004	1,318	1,645	2,963	3	C	7/1-7/30; 8/1-9/15		127	59	118	118	143	618
RR	Stonehouse	0005	28,551	9,280	37,831	6	C	5/10-6/25; 11/25-1/10		2,075	1,985	2,075	1,985	2,342	7,603
RR	Armstead-Upper Sage	0007	10,470	9,315	19,785	10	C	5/15-12/31		2,041	1,625	2,041	1,890	2,065	2,231
RR	Mosman	0011	3,605	1,965	5,570	3	C	5/15-10/15		514	425	514	514	570	1,148
RR	Matador	0012	39,657	38,748	78,405	6	C	4/15-12/31		5,000	4,906	3,125	4,906	9,000	12,914
RR	Gallagher Mtn.	0013	14,517	13,035	27,552	9	C	5/1-10/20		4,222	4,500	4,177	4,177	4,260	5,764
RR	Barretts	0014	1,648	607	2,255	3	C	5/10-8/9; 8/10-11/24		208	208	208	208	274	471
RR	Bear Creek	0018	1,679	1,955	3,634	2	C	7/1-8/15; 8/15-9/30		371	371	210	371	396	429
RR	Rape Creek	0019	9,864	346	10,210	3	C	6/1-6/30; 9/1-9/30		906	1,396	906	906	1,230	2,407
RR	Tallent	0027	3,150	2,329	5,479	6	C	6/5-12/1		485	714	485	465	548	1,385
RR	Baldy Mountain	0037	8,525	4,416	12,941	3	C	5/10-10/15		1,303	1,303	969	1,303	1,420	2,258
RR	Muddy Creek	0039	14,305	5,264	19,569	7	C	6/15-11/05		1,649	1,400	1,649	1,649	1,698	2,726
RR	Price Creek	0040	7,211	12,779	19,990	4	C	7/1-12/15		1,273	809	1,273	1,273	1,603	1,688
RR	Meadow Creek	0042	1,160	7,077	8,237	3	C	6/16-9/30		224	184	184	184	241	728
RR	Copp-Jackson	0301	2,937	3,492	6,429	3	C	6/1-10/15		197	197	174	197	204	288
RR	Moose Creek	0303	5,958	5,515	11,473	9	C	5/21-11/32		680	619	680	680	696	1,856
RR	Rochester Basin	0324	13,031	8,725	21,756	6	C	6/1-10/15		1,938	1,938	1,946	1,938	2,170	3,226

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Grazing System	Allotment Name	Allotment Number	Acres			PAS	Kind of Livestock	Proposed Season of Use	BLM only--Livestock Forage Production (AUMs)						
									Range Survey*		Current Permitted Use	Average Actual Use	Proposed Management		Forage Potential
			BLM	Other	Total				Total	Usable			Initial	25-Year Projection	
RR	Deer Canyon	0749	434	9,010	9,444	3	C	7/1-10/15		30	30	30	30	32	96
Subtotal, Existing AMPs with RR Grazing System			170,008	142,251	312,259					23,648	23,074	21,044	23,199	29,349	48,618
Existing AMPs with AR Grazing System															
AR	Bannack	0015	10,741	1,904	12,645	4	C	5/1-6/29		544	508	544	511	744	1,756
AR	Coyote Flats	0017	3,787	60	3,847	4	Y	5/15-6/14		400	678	400	400	440	1,077
AR	Robb Creek	0167	6,039	--	6,039	2	C	8/1-8/30		467	545	545	467	459	1,672
AR	Iron Rod	0268	5,682	4,426	10,108	4	C	5/16-10/15		569	569	746	569	806	956
AR	Greenstone	0317	2,862	241	3,103	2	C	8/15-10/20		216	216	88	216	216	580
AR	Jerry Creek	0318	10,479	2,361	12,840	3	C	6/1-6/30		856	856	781	856	907	2,536
Subtotal, Existing AMPs with AR Grazing System			39,590	8,992	48,582					3,052	3,372	3,104	3,019	3,572	8,577
Existing AMPs with DR Grazing System															
DR	Conover	0116	4,035	2,360	6,395	1	S	7/15-9/15		286	286	286	286	291	380
Subtotal, Existing AMPs with DR Grazing System			4,035	2,360	6,395					286	286	286	286	291	380
Total, Existing AMPs			213,633	153,603	367,236					26,986	26,732	24,434	26,504	33,212	57,575
Revised AMPs with RR Grazing System															
RR	Clark Canyon	0002	9,087	8,203	17,290	14	C,S	1/1-12/31		1,783	1,783	2,100	1,783	2,143	2,143
RR	Crooked Creek	0010	2,588	770	3,358	3	C	5/1-6/30; 8/15-9/14		383	485	383	373	508	599
RR	North Black Can.	0020	6,188	--	6,188	3,1	Y	6/1-9/30		1,139	1,084	1,368	1,139	1,173	2,402

RR	Leadman	0021	3,735	520	4,255	3	C	5/15-6/15; 11/16-1/15		763	395	395	395	1,015	1,238
RR	Dixon Mountain	0022	2,004	605	2,609	3	C	5/10-6/9; 10/1-12/31		291	291	212	260	301	358
RR	Anderson Field	0026	6,425	2,728	9,153	6	C	5/1-1/28		1,040	1,040	1,305	1,040	1,103	1,671
RR	Snowline	0029	9,204	12,364	21,568	6	C	7/1-2/29		2,026	2,019	2,896	1,989	2,096	2,462
RR	Reservoir Creek	0030	12,409	3,092	15,501	6	C	5/15-6/30; 8/15-9/30		1,375	1,658	1,375	1,375	2,026	3,589
RR	PHW	0031	9,046	336	9,382	6	C	5/15-8/30		1,247	1,238	956	1,116	1,651	2,986
RR	Exchange Pasture	0032	2,306	--	2,306	3	C	5/15-10/15		406	406	550	406	457	803
RR	Cross Allotment	0033	3,671	359	4,030	1	C	6/1-10/30		420	420	420	420	502	976
RR	Red Mine	0034	3,782	948	4,730	4	C	6/1-9/30		471	470	577	470	537	1,219
RR	Brenner Seeding	0035	2,631	105	2,736	3	C	6/1-6/30; 9/1-9/30		420	417	645	417	440	752
RR	Buck Creek	0038	15,817	7,080	22,897	2,3	C	4/15-6/25		1,053	1,118	850	1,118	1,118	3,652
RR	Camp Creek	0308	29,074	6,399	35,473	9	C	5/21-10/3		3,555	4,181	2,210	2,859	3,002	5,060
RR	Lelow Basin	0335	1,628	4,030	5,658	3	C	6/1-6/30; 8/6-9/30		227	227	97	176	338	469
RR	Sweetwater	0471	12,038	7,688	19,726	4	C	5/20-10/19		1,332	2,057	2,057	1,281	1,505	4,793
Subtotal, Revised AMPs with RR Grazing System			131,633	55,227	186,860					17,931	19,289	18,396	16,617	19,915	35,172
Revised AMPs with AR Grazing System															
AR	Chinatown	0016	4,890	1,493	6,383	3,1	C	5/20-7/15		661	662	661	662	725	1,568
AR	Trail Creek	0025	353	80	433	1	C	6/1-8/30		34	34	115	34	42	106
AR	Rock Creek	0041	505	0	505	1	C	5/20-7/1		140	47	167	140	144	182
Subtotal, Revised AMPs with AR Grazing System			5,748	1,573	7,321					835	743	943	836	911	1,856
Revised AMPs with DR Grazing System															
DR	Junction Seeding	0009	907	0	907	2	C	6/24-7/15; 10/15-11/7		272	362	272	272	355	355

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									BLM only--Livestock Forage Production (AUMs)						
			Acres						Range Survey*				Proposed Management		
Grazing System	Allotment Name	Allotment Number	BLM	Other	Total	PAS	Kind of Livestock	Proposed Season of Use	Total	Usable	Current Permitted Use	Average Actual Use	Initial	25-Year Projection	Forage Potential
DR	Scudder Creek	0028	653	150	803	2	Y	5/21-6/3; 6/3-6/20		221	221	242	221	236	256
Subtotal, Revised AMPs with DR Grazing System			1,560	150	1,710					493	583	514	493	591	611
Total, Revised AMPs			138,941	56,950	195,891					19,259	20,615	19,853	17,946	21,417	37,639
Proposed AMPs with DR Grazing System															
DR	Porcupine Canyon	0107	2,108	1,120	3,228	2	C	6/1-6/30; 10/1-12/31	680	480	458		458	518	734
DR	Weldon Buhler	0109	320	320	640	1	C	6/1-6/21; 11/1-11/11	82	71	45		45	77	83
DR,AR	Antelope Butte	0118	986	1.785	2,771	2	C	7/1-1/15	131	91	91		91	99	155
DR	Lemhi Pass	0145	2,307	1,484	3,791	2	C	7/15-9/30	245	144	78		78	159	409
DR	Matador Blacktail	0147	8,456	2,055	10,511	2	Y	7/1-10/15	558	176	308		176	199	776
DR	Radio-TV Tower	0150	1,832	2,079	3,911	2	C	8/20-11/11	712	388	415		388	423	483
DR	Long Creek	0152	20,434	6,773	27,207	6	C,Y	5/1-12/15	4,346	3,110	1,603		1,603	3,703	4,295
DR,RR	Maiden Creek	0156	670	359	1,029	2,1	C	6/10-7/31; 9/10-10/10	89	89	156		89	95	383
DR	Burns Mountain	0160	1,129	1,199	2,328	1	C	5/1-6/1; 10/15-12/6	157	153	176		153	153	320
DR	Coyote Creek	0165	956	133	1,089	1	C	6/1-8/30	142	142	275		142	375	430
DR	Henneberry Ridge	0171	1,290	467	1,757	1	C	7/25-10/15	154	154	153		153	180	296
DR	Ruby Dell	0172	4,190	3,673	7,863	2	C	6/25-7/16; 10/1-10/25	1,717	1,563	557		557	1,922	2,368
DR	Gallagher Creek	0173	758	327	1,085	1	C	10/1-10/30	84	63	110		63	70	170
DR	Kennison Spring	0182	1,530	1,435	2,965	2	C	6/1-6/15; 10/1-2/28	268	236	136		136	297	319

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DR	Shoshone Cove	0192	1,871	971	2,842	1	C	5/15-9/15	209	195	183		183	276	427
DR,D	William Bell Canyon	0193	7,941	2,818	10,759	5	C	5/20-10/15	2,194	1,167	1,250		1,167	1,295	1,440
DR	Preacher Creek	0404	744	1,377	2,121	2	C	6/25-11/1	167	96	92		92	107	128
DR	Strawberry Ridge	0421	1,907	2,671	4,578	1	C	7/1-8/31; 9/1-10/31	271	230	291		230	262	816
DR	Ballard	0456	887	1,094	1,981	2	C	6/15-9/30	131	127	177		127	135	288
DR	Garden Creek	0479	10,169	8,112	18,281	2	C	7/1-10/15	999	857	1,407		857	1,003	3,200
DR	North Fork	0482	3,544	--	3,544	2	S	5/1-6/10; 11/1-2/15	283	240	222		222	288	770
DR,RR	Axolotl Lakes	0485	7,100	186	7,286	3,3	C	7/1-10/1	798	645	1,065		518	729	1,997
DR	Rock Creek	0512	5,090	3,080	8,170	2	S,Y	3/1-4/30; 6/1-9/30; 12/1-2/28	810	810	1,077		810	1,029	1,532
DR	Spring Brook	0516	6,311	8,677	14,988	3	C,Y	5/1-11/1	1,065	961	1,461		933	1,393	1,761
DR	Whitworth	0720	1,302	105	1,407	2	C	6/1-9/20	360	250	139		132	155	230
DR	Sand Dunes	0732	679	128	807	1	C	7/1-10/14	128	128	148		109	142	306
DR	Snowcrest Ranch	0734	1,451	--	1,451	1	S	5/15-6/15; 9/1-11/15	469	469	117		117	506	529
Subtotal, Proposed AMPs with DR Grazing System			95,962	52,428	148,390				17,249	13,035	12,190		9,629	15,590	24,645
Proposed AMPs with D Grazing System															
D	Twin Lakes	0104	1,049	23,000	24,049	2	C	7/1-9/30	95	53	174		53	58	130
D	Frenchie-Carroll-Holland	0120	6,279	175	6,454	2	C	11/15-12/31	872	667	989		667	769	1,835
D,RR	Lima Reservoir	0151	6,163	5,087	11,250	5	C	6/16-7/1; 8/10-11/30	1,452	1,452	1,161		1,161	1,583	2,542
D	Buzztail	0161	548	510	1,058	1	C	10/1-2/28	97	97	56		56	104	126
D	Timber Butte	0168	3,660	1,020	4,680	2	Y	9/15-9/30	535	534	501		501	597	1,139
D	Saier Ind.	0169	320	0	320	1	C	9/1-10/1	148	148	102		102	152	183
D	Nelson	0313	505	45	550	1	C	10/2-10/17	95	95	125		95	105	227
D	Gneiting	0319	1,095	82	1,177	3	C	6/15-8/1; 8/1-9/15; 9/15-10/15	176	120	120		120	229	241

			Acres						BLM only--Livestock Forage Production (AUMs)						
									Range Survey				Proposed Management		
Grazing System	Allotment Name	Allotment Number	BLM	Other	Total	PAS	Kind of Livestock	Proposed Season of Use	Total	Usable	Current Permitted Use	Average Actual Use	Initial	25-Year Projection	Forage Potential
D	Logan Smith	0345	1,839	640	2,479	1	C	10/16-11/15	539	539	150		150	614	665
D	Windy Pass	0385	833	435	1,268	1	C	7/1-8/30	58	42	79		42	45	133
D,RR	Revenue Common	0407	2,279	2,267	4,546	5	C,Y	6/9-10/15	378	306	376		306	343	539
D,RR	Fletcher-Moore	0428	1,707	4,854	6,561	3	C	6/15-9/14	309	213	305		213	241	460
D	Bryan	0459	907	320	1,227	1	C	8/1-10/15	122	122	223		122	140	251
D	Idaho Jack	0499	4,799	2,479	7,278	1	C	7/10-9/27	354	247	413		247	262	717
D	Wisconsin Creek	0501	1,354	441	1,795	1	C	8/15-10/14	174	170	201		170	209	465
D	Sweetwater Basin	0518	1,369	2,107	3,476	1	C	7/15-8/15	139	123	223		107	139	474
D	Virginia City Hill	0521	2,590	5,880	8,470	6	C	6/3-11/19; 5/20-11/19	346	328	722		328	558	1,097
D	Wheat	0706	412	236	648	1	C	11/15-12/15	55	39	161		39	50	93
D	Staudenmeyer	0710	2,943	3,236	6,179	2	C	7/25-10/30	1,299	783	826		783	1,018	1,365
D	Small Horn Canyon	0722	451	208	659	1	C	8/4-10/15	72	43	88		43	46	129
Subtotal, Proposed AMPs with D Grazing System			41,102	53,022	94,124				7,315	6,121	6,995		5,305	7,262	11,811
Proposed AMPs with RR Grazing System															
RR	Little Divide	0101	4,926	3,533	8,459	7	C,S	5/15-9/30	1,749	1,728	504		504	2,056	2,572
RR	Morrison-Sweeney	0102	360	826	1,186	1	C	6/15-9/15	50	111	32		32	132	168
RR	Cabin Creek	0102	947	640	1,587	1	C,Y	6/15-9/15	475	293	310		310	346	391
RR	Hansen Creek	0108	13,534	19,195	32,729	4,3	C,S	4/1-7/1; 11/1-2/1; 5/16-10/15	4,090	3,256	2,571		2,571	3,590	3,758
RR	Pipe Organ Rock	0110	1,016	899	1,915	1	Y,C	5/15-11/30	256	213	84		84	259	358
RR	Red Canyon	0113	2,127	509	2,636	1	C	5/10-6/30; 8/10-9/22	353	351	699		351	400	600
RR,D	Bill Hill Creek	0114	1,564	1,550	3,114	2	C,Y	6/10-7/15; 12/1-2/1	234	220	240		220	297	420

RR	Pass Creek	0119	2,288	245	2,533	3	C,Y	7/1-10/15	836	659	690		659	797	808
RR	Taylor Cr.-Buffalo Cr.	0122	5,646	231	5,877	3,1	C	5/30-6/25; 9/15-10/11	720	690	947		690	1,290	1,621
RR	Huntsman	0123	1,627	619	2,246	1	C	5/6-9/30	689	590	331		331	792	792
RR	Cedar Creek	0124	3,998	840	4,838	2	C	5/20-6/30; 9/15-11/1	342	299	540		299	411	873
RR	Ellis Peak	0126	3,253	2,103	5,356	3	Y	7/1-9/30	1,107	464	869		464	552	802
RR	Big Spring Gulch	0129	4,420	1,512	5,932	1	C	5/15-6/25	904	894	658		658	1,090	1,257
RR	South Black Can.	0130	3,670	7,193	10,863	3	C	6/16-9/30	359	297	819		297	365	1,164
RR,AR	Frying Pan	0131	2,804	5,226	8,030	3,1	C	5/10-10/31	383	336	423		336	436	558
RR	Knox	0136	6,747	5,638	12,385	5	C	6/1-11/30	1,004	959	1,166		959	1,126	2,734
RR	Bull-Heifer Cr.	0137	1,129	600	1,729	1	C	5/15-7/15; 8/15-10/30	215	215	62		62	245	453
RR	Kent-Price Canyon	0138	1,836	201	2,037	2	C	5/10-10/31	375	318	364		318	346	366
RR,DR	Mayberry	0143	10,695	6,290	16,985	3,3	C,S	5/20-10/15; 5/5-7/1	3,819	3,556	2,375		2,375	3,658	3,658
RR	Simpson Creek	0158	4,142	1,101	5,243	7	C,S	6/1-9/20	1,532	1,401	1,101		1,101	1,723	1,735
RR	Phalarope	0177	6,921	5,663	12,584	3,1	C,S	5/1-10/31	1,750	1,750	1,028		1,028	1,907	3,173
RR	Peet Rock	0179	912	1,372	2,284	2	C	6/15-7/10; 8/15-10/31	236	236	527		236	264	644
RR	Bell Ranch	0197	2,318	384	2,702	1	Y	6/1-10/30	320	285	274		274	350	521
RR	Rody	0199	1,008	2,040	3,048	3	C	3/1-2/28	345	338	236		236	372	384
RR	Four Eyes	0269	6,152	1,182	7,334	2	C,S	5/15-11/30	1,700	620	292		292	262	762
RR	Lima Peaks	0270	1,567	--	1,567	2	C	6/16-10/15	506	474	236		236	517	573
RR	Bradley	0302	806	77	883	1	C	6/1-7/1; 10/1-10/15	36	36	123		36	44	231
RR	Burk-Rieber	0305	1,242	179	1,421	2	C	6/1-6/30; 10/1-10/30	113	73	154		73	124	274
RR	Glendale Common	0311	3,328	1,045	4,373	2	C	6/1-6/30; 10/1-10/15	210	210	397		210	288	855
RR	Maiden Rock	0312	1,351	625	1,976	2	C	5/15-7/1; 10/1-10/30	219	69	27		27	77	126
RR	Garrison	0314	8,594	1,122	9,716	3	C	6/1-9/22	534	500	1,030		500	695	1,754

Grazing System	Allotment Name	Allotment Number	Acres			P A S	Kind of Livestock	Proposed Season of Use	BLM only--Livestock Forage Production (AUMs)						
			BLM	Other	Total				Range Survey		Current Permitted Use	Average Actual Use	Proposed Management		Forage Potential
									Total	Usable			Initial	25-Year Projection	
RR	Richards	0315	724	64	788	1	C	6/1-6/30; 10/1-10/30	126	116	130		116	123	160
RR	Redfern	0316	3,401	1,352	4,753	8	C	7/1-10/10	117	93	386		93	126	287
RR	Browns Cherry Cr.	0320	3,294	211	3,505	2	C	6/1-6/30; 9/15-10/15	485	247	174		174	365	776
RR	McCartney Mt.	0323	24,388	19,206	43,594	5,1	C	5/1-7/15; 8/15-9/14	2,581	2,349	3,128		2,349	2,863	5,615
RR	Tungsten Mill	0326	1,880	530	2,410	3	C	5/18-6/20; 10/1-10/15	202	202	145		145	256	484
RR	Birch Cr.-Willow Cr.	0328	4,120	308	4,428	3	C	5/15-7/1; 10/1-10/30	462	347	290		290	832	1,270
RR	Skeeters	0332	690	82	772	2	C	6/1-6/15; 12/1-12/15	99	41	41		41	98	230
RR	Seven Springs-Big Hole	0337	2,605	1,152	3,757	2	C	6/1-7/1; 9/15-10/15	167	159	280		159	259	564
RR	Deno Cr.	0341	1,258	0	1,258	1	C	6/1-7/10; 9/15-10/30	59	56	109		56	94	141
RR	Limekiln	0342	2,087	174	2,261	1	C	5/20-7/10; 10/1-11/1	113	62	124		62	80	265
RR	Twin Adams	0347	1,199	655	1,854	1	C	4/15-5/15; 8/15-9/15	120	120	72		72	164	275
RR	Georgia Gulch	0348	2,056	694	2,750	3	C	6/15-9/14	249	247	249		172	338	887
RR	Seyler Pasture	0354	2,820	885	3,705	2	C	5/10-5/31; 10/16-12/15	791	791	672		672	918	922
RR	Sparrow Ditch	0377	288	0	288	1	C	6/15-8/14	80	80	80		80	87	149
RR	Shaw Basin	0433	664	894	1,558	2	C	6/15-9/15	117	96	74		74	106	182
RR	Kountz	0443	1,348	2,101	3,449	3	C	6/15-10/14	261	241	182		182	280	535
RR	Wallace Peak	0447	1,280	1,759	3,039	4	C	7/1-10/1	258	100	177		100	135	210
RR	Granite Creek	0468	1,248	628	1,876	3	C	6/1-9/30	103	75	223		75	122	240

RR,D	Belmont	0469	9,504	2,412	11,916	3	C	5/1-10/15; 2/15-2/28	759	677	1,037		677	774	2,648
RR	Virginia City	0488	2,588	3,222	5,810	1,3	C,Y	6/15-9/14	197	197	487		197	204	1,064
RR	Benchmark	0489	1,410	11,032	12,442	6	C	5/25-11/30	181	165	334		165	186	429
RR	Barton Gulch	0490	3,307	2,770	6,077	1	C,H	6/15-9/1	121	52	64		52	56	174
RR	Davey Creek	0497	5,832	2,586	8,418	4	C,H	6/1-10/1	405	318	338		318	359	460
RR,D	Stone Creek	0498	3,797	4,294	8,091	3,1	C	7/1-10/15	323	297	438		297	353	1,069
RR	California Creek	0507	3,198	3,294	6,492	6	C	6/15-9/30	312	205	278		181	245	664
RR	Dry Lakes	0526	2,784	5,304	8,088	5,4	C	6/1-10/30; 6/1-10/15	352	283	469		283	325	811
RR,DR	Copper Mountain	0531	2,475	3,443	5,918	5	C,Y	5/20-10/19	173	158	357		158	201	667
RR,D,DR	Timber Creek	0533	3,591	1,025	4,616	3,1,1	C,Y	6/9-10/15	524	513	763		513	590	850
RR	Nicholia	0699	9,617	1,569	11,186	4	C	5/15-7/1	2,619	1,454	1,045		1,045	1,701	2,254
RR	Thomas	0702	1,521	1,587	3,108	2	C	5/15-8/15; 8/15-11/15	322	322	254		254	348	683
RR	Wolfe	0703	640	194	834	1	C	5/15-7/15; 8/15-10/30	175	175	194		175	189	211
RR	Fish Creek	0708	4,166	2,463	6,629	2	C	5/1-6/1; 8/15-10/15	1,663	1,428	1,104		1,104	1,751	1,751
RR	Wellborn (Dell)	0714	1,425	159	1,584	1	C	5/15-7/15; 8/15-10/20	380	380	264		264	425	513
RR	Horse Prairie Livestock	0725	2,603	2,435	5,038	3,2	C,Y	5/20-9/5	403	301	635		301	334	775
RR	Roe Ranch	0727	8,134	3,375	11,509	3	C	7/1-10/15	2,159	1,413	417		417	1,723	2,035
RR	Jones Peet	0730	4,782	3,084	7,866	2	C	7/1-10/15	1,134	714	231		231	755	881
RR	Forsythe	0735	4,111	6,314	10,425	3,1	C	6/1-11/30; 7/1-9/30	1,297	1,041	1,189		1,041	1,113	1,473
RR	Cocanougher	0738	235	212	447	2	C	6/1-9/30	53	53	100		39	57	71
RR	East Clover Cr.	0740	2,772	0	2,772	1	C	6/15-10/15	1,004	977	318		318	1,231	1,210
RR	Indian Creek	0741	3,049	1,294	4,343	4	C	6/1-9/15	847	331	662		331	364	540
RR	Taylor Creek	0745	1,363	894	2,257	2	C,Y	6/1-9/30	128	123	69		69	174	401
RR	Briggs-Medicine Lodge	0748	10,646	3,873	14,519	4	C	5/15-10/14	2,650	1,880	1,476		1,476	2,312	3,133

									BLM only--Livestock Forage Production (AUMs)						
			Acres						Range Survey				Proposed Management		
Grazing System	Allotment Name	Allotment Number	BLM	Other	Total	PAS	Kind of Livestock	Proposed Season of Use	Total	Usable	Current Permitted Use	Average Actual Use	Initial	25-Year Projection*	Forage Potential*
RR	Bannock Pass	0753	476	30	506	1	Y	6/15-9/1	69	69	112		69	77	325
RR	Dad Creek	0758	661	120	781	1	C	7/1-9/15	184	73	34		34	99	123
Subtotal, Proposed AMPs with RR Grazing System			260,965	170,320	431,285				50,285	40,462	38,314		30,690	48,003	72,792
Proposed AMPs with AR Grazing System															
AR,RR,D	Big Hole Road	0135	1,564	2,228	3,792	2,1,1	C	5/20-6/20; 11/1-4/30	288	288	167		167	314	385
AR	Rocky Hills	0148	16,931	7,855	24,786	7	Y	5/1-6/20	1,967	1,609	1,866		1,609	2,220	3,734
AR,D	Shineberger	0159	1,032	2,260	3,292	2,1	C,Y	7/15-9/30	278	221	211		211	231	307
AR	Dry Boulder	0236	518	--	518	4	C	6/1-10/1	27	25	33		25	28	113
AR	Lost Creek	0322	670	562	1,232	1	C	5/10-7/10	69	56	117		56	61	124
AR	Devil's Dancehall	0327	3,432	1,230	4,662	2	C	4/15-6/10	132	105	154		68	125	414
AR	Quartz Hill	0343	1,024	10	1,034	1	C	6/1-6/30	85	55	78		55	94	230
AR,D	Alder Creek	0351	2,164	241	2,405	3	C	6/1-7/15; 10/1-10/30	179	124	143		119	153	181
AR,D	Mill Gulch	0475	667	2,160	2,827	3	C	6/1-10/25	98	98	98		98	123	211
AR	Brandon Pasture	0481	742	263	1,005	1	C	6/1-6/16	58	51	98		51	97	317
AR	Hogback	0486	871	660	1,531	1	C	4/1-6/1	136	136	74		74	144	237
AR	Rattlesnake	0510	1,355	1,641	2,996	1	C	5/15-6/30	210	210	128		128	225	264
AR,D	Wall Creek	0522	810	845	1,655	2,1	C	6/1-10/31	381	374	145		145	375	375
AR,D,DR	Middle Fork	0525	2,174	4,590	6,764	11	C	6/1-11/30	537	537	449		449	634	676
AR,D,DR	McHessor Creek	0530	4,864	2,827	7,691	2,1,1	Y	7/1-10/15	242	132	199		97	154	274
Subtotal, Proposed AMPs with AR Grazing System			38,818	27,372	66,190				4,687	4,021	3,960		3,352	4,978	7,842

Proposed AMPs with SDHI Grazing System														
SDHI	Lower Rochester Basin	0353	1,333	7,212	8,545	7	C	4/15-6/15	146	146	205		146	162	380
Subtotal, Proposed AMPs with SDHI Grazing System			1,333	7,212	8,545				146	146	205		146	162	380
Total, Proposed AMPs			438,180	310,354	748,534				79,682	63,785	61,664		49,122	75,995	117,470
Non-AMPs															
S	Antelope Creek	Unlsd.	80		80	1	C	6/1-10/30	9	9	0		9	9	9
S	Birch Creek	Unlsd.	40		40	1	C	6/1-10/15	5	5	0		5	5	5
S	Boner Knob	Unlsd.	17		17	1	C	5/1-10/31	2	2	0		2	2	2
S	Buckwheat	Unlsd.	40		40	1	C	6/1-10/30	5	5	0		5	5	5
S	Bufflehead	Unlsd.	66		66	1	C	6/1-11/30	6	6	0		6	6	6
S	Butch Hill	Unlsd.	40	560	600	1	C	6/1-11/30	7	6	0		6	6	6
S	Cameron Bench	Unlsd.	40	600	640	1	C	5/1-11/30	6	6	0		6	6	6
S	Casey	Unlsd.	160	1,960	2,120	1	C	4/1-6/1	16	16	0		16	16	16
S	Checkerboard	Unlsd.	123		123	1	C	6/1-10/31	11	9	0		9	9	9
S	Cherry Creek	Unlsd.	90		90	1	C	5/1-10/31	7	7	0		7	7	7
S	Chokecherry	Unlsd.	30		30	1	C	6/1-9/30	2	2	0		2	2	2
S	Condor	Unlsd.	40		40	2	C	5/1-11/30	4	4	0		4	4	4
S	Corral Creek	Unlsd.	235		235	3	C	6/1-11/30	36	36	0		36	36	36
S	Dickie	Unlsd.	168		168	1	C	5/1-10/31	17	11	0		11	11	11
S	Dry Hollow	Unlsd.	40		40	1	C	5/1-11/30	7	7	0		7	7	7
S	Ennis Lake	Unlsd.	35		35	2	C	7/1-3/31	5	2	0		2	2	2
S	Flying N	Unlsd.	475		475	8	C	5/15-11/30	91	91	0		91	91	91
S	Harrison	Unlsd.	110	275	385	1	C	8/1-11/30	27	13	0		13	13	13
S	Jackrabbit	Unlsd.	121		121	2	C	4/1-12/31	27	27	0		27	27	27

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Grazing System	Allotment Name	Allot-ment Number	Acres			PAS	Kind of Live-stock	Proposed Season of Use	BLM only--Livestock Forage Production (AUMs)						
									Range Survey		Current Permitted Use	Average Actual Use	Proposed Management		Forage* Potential
			BLM	Other	Total				Total	Usable			Initial	25-Year* Projection	
S	Johnny Gulch	Unlsd.	40		40	1	C	4/1-11/31	6	2	0		2	2	2
S	Kidd	Unlsd.	52		52	2	C	10/1-5/31	9	9	0		9	9	9
S	Lima	Unlsd.	40		40	1	C	5/1-12/30	8	8	0		8	8	8
S	Little America	Unlsd.	158		158	1	C	5/1-11/30	38	37	0		37	37	37
S	London Hills	Unlsd.	600		600	1	C	6/1-9/30	7	4	0		4	4	4
S	Miner Creek	Unlsd.	127		127	3	C	6/21-9/30	24	11	0		11	11	11
S	Monida	Unlsd.	185		185	1	C	5/1-11/30	29	28	0		28	28	28
S	Moose Creek	Unlsd.	160		160	3	C	5/1-10/30	38	38	0		38	38	38
S	Mt. Humbug	Unlsd.	160		160	1	C	6/1-9/30	16	15	0		15	15	15
S	Mule Shoe	Unlsd.	42	35	77	1	C	10/1-10/30	4	3	0		3	3	3
S	Mustang	Unlsd.	280		280	1	C	8/1-11/30	45	45	0		45	45	45
S	Ruddy Duck	Unlsd.	220		220	2	C	5/1-11/30	79	9	0		9	9	9
S	Shepherd Mountain	Unlsd.	74		74	1	C	6/1-6/30	5	4	0		4	4	4
S	Spokane	Unlsd.	22		22	2	C	5/1-10/30	7	6	0		6	6	6
S	Steamboat Rock	Unlsd.	6,049		6,049	2	C	6/1-11/30	1,682	1,487	0		1,487	1,487	1,487
S	Sugarloaf Mountain	Unlsd.	79		79	1	C	5/1-11/30	7	7	0		7	7	7
S	Trapper Creek	Unlsd.	131		131	2	C	5/1-11/30	18	13	0		13	13	13
S	Triangle	Unlsd.	54		54	1	C	5/1-11/30	6	6	0		6	6	6
S	Tumbleweed	Unlsd.	40		40	1	C	5/1-11/30	7	7	0		7	7	7
S	Warm Springs	Unlsd.	400		400	1	C	5 -11/30	17	17	0		17	17	17
S	Hildreth	0103	620	640	1,260	1	S	11/1-2/28	116	98	183		98	98	98
S	Anderson	0105	1,586		1,586	2	C	6/1-11/30	182	171	417		171	171	171
S	Bar OK	0106	201		201	3	C	7/1-9/30	55	51	45		51	51	51

S	Selway	0111	155		155	2	C	6/1-11/30	35	17	24		17	17	17
S	Bjorni	0112	70		70	2	C	5/1-11/30	9	9	12		9	9	9
S	Lost Custodial	0115	242		242	1	C	5/1-11/30		80	37		57	57	57
S	Huntsman	0125	160		160	3	C	3/1-2/28	53	53	183		53	53	53
S	Hildreth Livestock	0127	292	890	1,182	2	C	5/15-11/30	104	104	251		104	104	104
S	G&L Ranches	0128	43	260	303	1	C	6/1-11/30	6	6	14		6	6	6
S	Erb	0132	1,910	6,360	8,270	5	C	5/15-11/30	318	128	116		128	128	128
S	Hayden	0134	160	1,680	1,840	2	C	5/15-12/30	56	36	36		36	36	36
S	K-6	0139	120	690	810	1	C	5/15-11/30	8	8	15		8	8	8
S	Arlo Jones	0140	400	0	400	1	C	2/1-6/1	148	76	76		76	76	76
S	Johnson Bros.	0141	160		160	1	C	6/1-10/30	127	38	115		38	38	38
S	Hirschey	0142	244		244	2	C	8/1-10/30	71	61	50		61	61	61
S	Magpie Trail Gulch	0144	520		520	2	C	6/1-6/30	109	45	58		45	45	45
S	Matador S.G.C.	0153	395	2,960	3,355	4	C	5/1-11/30	215	215	256		215	215	215
S	L Diamond	0155	920	4,455	5,375	9	C	5/1-11/30	133	133	256		133	133	133
S	Long Creek	0157	130	3,540	3,670	2	C	5/15-12/15	69	41	244		41	41	41
S	Munday Ind.	0162	320	900	1,220	1	C	7/1-10/30	51	51	78		51	51	51
S	Morton	0163	160	215	375	1	C	5/15-7/15	28	18	18		18	18	18
S	Martinell	0164	160		160	4	C	6/1-10/31	84	83	26		83	83	83
S	Esterwald	0166	15		15	2	C	5/15-11/30	5	5	12		5	5	5
S	Rebich & Sons	0170	751		751	1	C	6/2-11/30	42	27	136		27	27	27
S	Rebich	0174	335		335	1	C	7/15-10/30	127	62	27		62	62	62
S	Railroad	0175	920	930	1,850	1	C,H	9/1-3/31	296	296	202		296	296	296
S	E. Munday	0176	476	1,170	1,646	1	C,Y	5/1-10/30	79	79	41		79	79	79
S	Mooney	0178	1,114	2,440	3,554	1	C	7/1-10/15	58	35	164		35	35	35
S	Duffner	0180	40		40	2	C	5/1-10/30	9	9	24		9	9	9
S	Passmore	0183	80	0	80	1	C	5/1-11/30	17	16	75		16	16	16

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Grazing System	Allotment Name	Allotment Number	Acres			PAS	Kind of Livestock	Proposed Season of Use	BLM only--Livestock Forage Production (AUMs)						
									Range Survey		Current Permitted Use	Average Actual Use	Proposed Management		Forage* Potential
			BLM	Other	Total				Total	Usable			Initial	25-Year* Projection	
S	Meine Land and Livestock	0184	1,145		1,145	2	C	6/15-10/14	112	89	150		89	89	89
S	McCandless	0185	990	3,940	4,930	4	C	6/1-10/31	345	237	237		237	237	237
S	Seybold	0187	1,040		1,040	3	C	5/1-5/31; 10/1-11/30	306	86	233		86	86	86
S	Selkirk	0188	1,050		1,050	4	C	8/15-10/31	137	111	219		111	111	111
S	Schonenberger	0189	160	0	160	1	C	7/1-10/30	18	11	10		11	11	11
S	Rutledge Ranches	0190	360	1,460	1,820	1	C	8/1-10/30	62	62	60		62	62	62
S	Farley Polaris	0191	1,790		1,790	2	C	5/15-11/30	240	114	114		114	114	114
S	Brown's Canyon	0194	120		120	1	C	7/15-10/30	27	13	39		13	13	13
S	Rutledge-Doolittle	0196	40		40	2	C	9/1-9/30	11	6	5		6	6	6
S	Third Creek	0237	851		851	1	Y	5/16-10/15	107	21	55		21	21	21
S	Chalk Bluff	0300	1,238	3,015	4,253	4	C,Y	8/1-11/30	266	174	165		174	174	174
S	Willow Creek	0304	190	560	750	2	C	6/15-8/1 8/1-9/30	18	17	11		17	17	17
S	Waterloo	0306	1,482		1,482	3	C	8/1-9/30	129	94	143		94	94	94
S	Carpenter	0307	80	690	770	1	C	5/1-7/1	10	10	26		10	10	10
S	Childs Ind.	0310	305		305		C	4/1-6/30	52	51	62		51	51	51
S	Lott	0331	390	800	1,190	1	C	8/15-10/15	41	39	20		39	39	39
S	Mt. Haggin	0334	1,041		1,041		C	6/15-10/15	125	120	137		120	120	120
S	Peck Ind.	0336	81	660	741	1	C	6/1-9/30	11	11	11		11	11	11
S	Pendergast	0338	160		160	1	C	5/5-5/20; 11/1-12/15	31	19	18		19	19	19
S	Deep Creek	0339	2,156		2,156	6	C,H	5/16-9/30; 8/1-10/30	253	158	215		146	146	146
S	Leffler Creek	0340	925	0	925	1	C	5/15-7/1; 10/1-10/15	56	32	41		32	32	32

S	Smith Ind.	0346	240		240	2	C	6/1-10/15	25	25	24		25	25	25
S	White Rock	0349	670	3,240	3,910	3	C	5/1-9/15	66	48	60		48	48	48
S	Kearns Ind.	0350	160		160	1	C	3/1-3/29	28	27	17		27	27	27
S	Harriet Lou Creek	0352	90		90	1	C	6/1-6/30	10	9	22		9	9	9
S	McCullough Ind.	0355	633		633	1	C	11/1-11/30	241	167	197		167	167	167
S	Individual A&B	0370	1,784		1,784	5	C	5/16-6/30	182	169	130		169	169	169
S	Fish Creek S.G.C.	0371	96		96	1	C	5/15-6/15	19	18	12		18	18	18
S	Armstrong	0378	160		160	1	C	6/1-11/30	29	25	27		25	25	25
S	Ballard	0379	95		95	1	C	6/1-9/30	10	4	4		4	4	4
S	Bausch	0380	553	840	1,393	2	C	6/1-10/15	73	73	73		73	73	73
S	Carter	0386	126	200	326	1	C	6/15-9/30	21	9	12		9	9	9
S	Dehaan	0390	87	500	587	1	C	5/1-11/30	8	8	8		8	8	8
S	Easter	0393	1,128		1,128	9	C	5/1-2/1	187	177	165		177	177	177
S	Elmer	0394	228		228	1	C	6/1-11/30	77	76	33		76	76	76
S	Biltmore	0395	348		348	2	C	5/1-11/30	102	63	63		63	63	63
S	Frisbee-McGee	0399	1,382		1,382	1	C	8/1-10/30	234	89	230		89	89	89
S	Goggins Hereford	0400	169		169	2	C	5/1-11/30	64	64	38		64	64	64
S	Lineberger	0401	192		192	1	C	6/10-10/10	33	23	20		23	23	23
S	J. Peter Jackson	0405	192		192	1	C	5/16-11/15	69	69	38		69	69	69
S	Peter V. Jackson	0406	757		757	7	C	4/1-12/31	105	85	62		85	85	85
S	William T. Jackson	0408	899	1,900	2,799	1	C	8/15-12/30	128	48	48		48	48	48
S	Jourdain	0410	150		150	2	C	6/16-10/15	26	21	20		13	13	13
S	Glenn Kyle	0412	188		188	1	C	9/1-10/15	61	38	23		38	38	38
S	Billie Grant Kyle	0413	160	350	510	2	C	7/1-8/15	31	29	23		29	29	29
S	Manion	0415	40		40	1	C	8/1-10/20	11	2	4		2	2	2
S	Ledyard-McGuire	0416	636		636	1	C	8/1-10/31	134	98	82		98	98	98
S	Michael	0417	445	1,520	1,965	5	C	6/1-10/31	161	160	86		160	160	160

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Grazing System	Allotment Name	Allotment Number	Acres			PAS	Kind of Livestock	Proposed Season of Use	BLM only--Livestock Forage Production (AUMs)						
									Range Survey		Current Permitted Use	Average Actual Use	Proposed Management		Forage* Potential
			BLM	Other	Total				Total	Usable			Initial	25-Year* Projection	
S	Miller	0418	40		40	1	C	10/1-4/30	4	4	5		4	4	4
S	Flying D	0420	294		294	3	C	3/10-5/10	72	12	35		12	12	12
S	Owens	0422	120		120	2	C	10/1-11/30	35	20	20		20	20	20
S	Robison	0429	476	822	1,298	3	C	6/16-8/30	63	63	96		63	63	63
S	Sacry	0430	119		119	1	C	8/15-10/31	39	38	34		34	34	34
S	Vern Shaw	0432	240		240	1	C	4/20-6/10	57	23	9		23	23	23
S	Shelton	0434	440	600	1,040	1	C	8/15-11/30	71	49	113		49	49	49
S	Glen Shelton	0435	160		160	4	C	6/15-9/30	19	18	15		18	18	18
S	Shirley	0436	646		646	3	C	8/15-11/14	104	64	64		64	64	64
S	Cliff Lake	0437	32	340	372	1	C	6/1-11/30	7	7	8		7	7	7
S	Sitz	0438	109		109	4	C	3/1-1/15	18	18	34		18	18	18
S	Willow Creek	0440	665		665	5	C	7/15-10/30	108	76	164		41	41	41
S	Moran	0444	209	2,015	2,224	1	C	5/1-9/30	33	33	25		33	33	33
S	Minnie Creek	0451	321	1,010	1,331	1	C	6/1-8/15	45	32	43		32	32	32
S	Armitage	0452	219	680	899	2	C	5/1-10/30	32	32	35		32	32	32
S	Walker Creek	0454	799	1,505	2,304	2	C	5/1-11/30	65	50	169		44	44	44
S	Butts	0455	80	150	230	1	C	10/1-12/1	14	14	14		14	14	14
S	Bar Seven	0457	1,874		1,874	9	C	5/1-11/30	390	372	635		372	372	372
S	Whitney	0458	239		239	1	C	5/1-11/30	46	15	24		15	15	15
S	Sun Ranch	0460	1,329		1,329	6	C	6/1-10/15	289	155	250		82	82	82
S	CB Ranch	0461	400		400	3	C	12/1-7/1	68	68	70		68	68	68
S	Squaw Creek	0462	1,122	1,378	2,500	4	C	8/1-10/15	125	104	153		104	104	104
S	Laurin Canyon	0463	1,077		1,077	2	C	8/1-10/31	128	114	143		114	114	114

S	Coconougher	0464	144		144	1	C	6/1-8/31	12	6	15		6	6	6
S	Mill Cr.-Gustin	0465	480	1,210	1,690	2	C,H	5/1-5/31	114	51	58		51	51	51
S	Nyhart	0470	775	3,910	4,685	2	C	7/15-11/1; 6/1-11/1	92	85	89		85	85	85
S	Daems	0472	77		77	1	C	4/1-6/30; 11/1-11/30	12	12	12		12	12	12
S	Blue Lake	0473	80	1,200	1,280	1	C	6/20-11/1	17	16	34		16	16	16
S	Durham	0474	200	380	580	2	C	9/15-11/30	40	33	23		33	33	33
S	Elkhorn	0476	124		124	1	C	10/1-5/31	31	22	35		22	22	22
S	Elser	0477	324	76	400	2	C	8/1-9/30	27	23	45		23	23	23
S	Funk	0478	232		232	1	C	5/1-10/30	27	23	48		23	23	23
S	Tucker Creek	0480	40		40	1	C	6/1-12/14	16	16	21		16	16	16
S	Baker Summit	0487	414		414	2	C	5/1-11/30	36	26	59		26	26	26
S	Black Rock	0491	2,582		2,582	3	C	6/10-11/1	274	147	218		147	147	147
S	Garnet	0492	605	180	785	1	C	8/1-10/31	33	23	94		23	23	23
S	Pierce Canyon	0493	819		819	1	C	8/1-11/30	104	75	75		75	75	75
S	Riverlodge	0494	143	160	303	1	C	8/15-11/15	24	24	35		24	24	24
S	Bench Allotment	0495	200		200	2	Y	5/1-5/31	28	21	23		21	21	21
S	Trout Creek	0496	320		320	2	C	6/1-9/15	59	37	40		37	37	37
S	Cedar Creek	0500	40	320	360	1	C	3/1-10/31	7	7	9		7	7	7
S	Eclipse	0502	80		80	2	C	5/1-11/30	5	4	4		4	4	4
S	Moorse Creek	0504	240	1,460	1,700	1	C	10/1-12/1	25	24	24		24	24	24
S	LaMarche Creek	0508	320	1,120	1,440	1	C	5/1-11/30	35	33	40		33	33	33
S	Herman Gulch	0509	70	0	70	1	C	6/1-10/30	10	7	27		7	7	7
S	Hoffman Creek	0511	280		280	2	S	6/15-12/31	38	35	36		35	35	35
S	Big Sheep	0513	522		522	2	C,S	5/19-2/28	73	73	107		73	73	73
S	Hillside	0514	239		239	2	C	10/1-3/1	36	29	58		29	29	29

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Grazing System	Allotment Name	Allotment Number	Acres			P A S	Kind of Livestock	Proposed Season of Use	BLM only--Livestock Forage Production (AUMs)						
									Range Survey		Current Permitted Use	Average Actual Use	Proposed Management		Forage* Potential
			BLM	Other	Total				Total	Usable			Initial	25-Year* Projection	
S	Red Canyon	0517	689	0	689	1	C	5/1-10/30	63	63	171		63	63	63
S	Riverside	0524	658		658	1	C	8/1-9/30	122	122	112		122	122	122
S	Spring Canyon	0527	530		530	1	C	7/15-10/1	44	38	56		38	38	38
S	Spear Place	0528	1,047		1,047	1	C	7/1-10/10	125	89	141		89	89	89
S	McAtee Bridge	0529	397		397	5	C	11/1-6/1	83	82	78		82	82	82
S	Carter Creek	0534	781		781	5	C,S	6/1-11/31	90	63	97		63	63	63
S	Antelope Gulch	0536	40		40	1	C	5/1-10/31	4	3	5		3	3	3
S	Beaverhead Rock	0537	120		120	2	C	5/15-6/20	16	5	7		5	5	5
S	Kelly Meridian	0539	184	1,160	1,344	1	C	5/15-6/30	32	32	32		32	32	32
S	Aspen Creek	0540	682		682	2	C	8/15-10/30	79	63	61		63	63	63
S	York Gulch	0541	125	320	455	2	C	5/25-6/1; 9/23-9/30	10	7	10		7	7	7
S	Hritsco	0542	269	760	1,029	1	C	6/1-10/15	39	30	49		30	30	30
S	Aqueduct	0545	45		45	1	C	6/1-12/30	10	4	5		4	4	4
S	Valley Garden	0547	252		252	1	C	5/1-11/30	33	30	33		30	30	30
S	Madison Valley Holding Pasture	0550	379	0	379	3	C	5/20-6/25	34	23	30		23	23	23
S	Garden	0601	1,147		1,147	1	C	5/5-11/1	94	66	107		66	66	66
S	Hildreth 1A	0602	200		200	1	C	6/1-6/15-1st; 11/15-12/31- 2nd; Rest-3rd	44	32	32		32	32	32
S	Kingfisher	0603	517		517	2	C	7/10-8/15-S. 33 5/20-8/15-S. 26 11/1-12/1 & 35	144	96	94		96	96	96
S	Little Spring Gulch	0604	1,516	2,950	4,466	3	C,Y	5/20-6/20; 10/15-1/1	286	286	497		286	286	286

S	Lovell's Lake	0605	142		142	1	C	5/1-11/30	29	24	24		24	24	24
S	Leadore	0606	25	480	505	1	C	10/1-5/15	7	7	4		7	7	7
S	Snowline AMP Cust.	0607	1,510		1,510	5	C	6/1-10/31	632	632	639		632	632	632
S	P.H.W.	0608	80	150	230	1	C	9/1-12/31	8	8	9		8	8	8
S	Red Mine	0609	12		12	1	C	5/1-11/30	2	2	2		2	2	2
S	Price Creek	0610	80	1,120	1,200	1	C	5/1-11/30	12	12	12		12	12	12
S	Meadow Creek	0611	160	80	240	1	C	5/1-11/30	40	40	40		40	40	40
S	Four Eyes	0612	145		145	2	S,C	10/1-5/15	61	61	28		25	25	25
S	Hanson-Medicine Lodge	0613	275	1,700	1,975	3	C,S	9/1-5/15	67	67	59		67	67	67
S	Hanson-Brown	0614	175		175	1	C,S	9/1-12/31	92	48	43		48	48	48
S	Buhler	0615	360		360	4	C	6/1-10/30	146	130	84		130	130	130
S	Willy	0616	667		667	2	C	7/1-9/30	137	45	45		45	45	45
S	Holland-Buffalo Cr.	0617	790		790	5	H,C	4/1-9/3	163	111	147		111	111	111
S	Holland-Carroll	0618	485		485	1	C	6/6-7/15	29	9	11		9	9	9
S	Holland-Bannack Rd.	0619	175		175	4	C	5/15-11/30	16	16	22		16	16	16
S	Dell	0620	40		40	1	C,H	5/1-11/30	15	15	14		15	15	15
S	Huntsman	0621	420		420	2	C	7/1-9/30	132	132	243		132	132	132
S	Detton	0622	480		480	1	S	5/15-12/31	154	48	50		48	48	48
S	Dillon	0623	70		70	2	C	6/1-10/30	10	10	9		10	10	10
S	Knox	0624	410	2,480	2,890	4	C	5/1-10/31	58	58	74		58	58	58
S	Kent	0625	243		243	2	C,H,S	5/18-1/10	25	11	11		11	11	11
S	Shesser-Horse Prairie	0626	40		40	1	C	6/1-11/30	4	4	4		4	4	4
S	Shesser-Stoll Tract	0627	60	640	700	1	C	6/15-11/30	20	20	16		20	20	20
S	Rocky Hills	0628	80		80	1	C	5/15-11/30	7	7	7		7	7	7
S	Rocky Hills - Painter Creek	0629	120	1,640	1,760	2	C	5/15-11/30	17	16	16		16	16	16

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									BLM only--Livestock Forage Production (AUMs)						
			Acres						Range Survey				Proposed Management		
Grazing System	Allotment Name	Allotment Number	BLM	Other	Total	P A S	Kind of Livestock	Proposed Season of Use	Total	Usable	Current Permitted Use	Average Actual Use	Initial	25-Year* Projection	Forage* Potential
S	Red Butte	0630	40		40	1	C	4/1-10/30	16	14	13		14	14	14
S	Robb Creek	0631	763		763	5	C	6/1-11/30	54	44	51		44	44	44
S	Timber Butte	0632	248	640	888	1	C	5/1-11/30	53	19	31		19	19	19
S	Saier Ind./S.G.C.	0633	40	880	920	1	C	4/15-11/30	6	6	6		6	6	6
S	Henneberry Ridge	0634	105		105	1	C	5/1-10/30	9	9	9		9	9	9
S	Gallagher	0635	1,107	1,510	2,617	1	C	6/1-9/31	174	135	234		135	135	135
S	Moss	0636	500	2,905	3,405	5	C	3/1-11/30	139	107	102		107	107	107
S	Rody	0637	103		103	1	C	6/1-11/30	17	17	15		17	17	17
S	Cottonwood Creek	0638	360	230	590	1	C	7/1-10/30	133	133	116		133	133	133
S	Wheat	0640	70		70	1	C	5/15-11/30	9	9	38		9	9	9
S	Allotment B	0641	40	160	200	1	C	5/1-11/30	7	7	8		7	7	7
S	Truax Creek	0642	374		374	2	C	6/1-12/31	137	92	97		92	92	92
S	Orphan	0643	40		40	1	C	6/1-12/31	12	12	14		12	12	12
S	Whitworth	0644	15	90	105	1	C	10/1-5/15	5	5	6		5	5	5
S	Horse Prairie - Bloody Dick	0645	290	0	290	1	C	7/15-9/14	121	105	221		105	105	105
S	Horse Prairie - Station Creek	0646	130		130	2	C	10/15-5/14	10	10	18		10	10	10
S	Horse Priarie- North Frying Pan	0647	40		40	1	C	6/1-11/30	9	3	8		3	3	3
S	Sand Dunes	0648	40	1,640	1,680	1	C	6/1-10/31	24	24	33		24	24	24
S	Snowcrest	0649	40		40	1	C,S	6/1-12/30	10	5	5		5	5	5
S	Forsythe	0650	260	900	1,160	2	C	6/15-11/30	75	75	90		75	75	75
S	Chaffin	0651	800		800	1	S	6/16-7/15; 10/1-10/10	314	110	84		110	110	110

S	Lichtenberg	0652	120	600	720	2	C	6/1-11/30	43	43	82		43	43	43
S	Medicine Lodge	0653	125	1,920	2,045	5	C	10/1-5/15	50	50	46		50	50	50
S	Donovan	0654	695		695	5	C	5/15-11/30	105	105	167		105	105	105
S	Mansfield	0655	40		40	1	C	10/1-5/15	10	10	16		10	10	10
S	Crazy Springs	0656	1,695	23,000	24,695	1	C	3/1-6/30	260	225	379		225	225	225
S	Burk	0657	100	860	960	1	C	5/16-6/30	8	7	15		7	7	7
S	Nelson	0658	39	200	239	1	C	10/2-10/17	5	5	7		5	5	5
S	Devil's Dancehall	0659	545		545	1	C	6/1-11/30	47	42	95		42	42	42
S	Deno Creek	0660	29		29	3	C	6/1-6/30	5	5	10		5	5	5
S	Rochester Basin	0661	1,541		1,541	6	C	5/1-11/30	616	273	382		273	273	273
S	O.H.S.	0662	67		67	1	C	7/1-9/25	4	2	3		2	2	2
S	Rice Ranches	0663	824		824	3	C	4/1-11/30	195	195	281		195	195	195
S	Wall Canyon	0664	39		39	1	C	6/1-10/30	3	2	3		2	2	2
S	Belmont	0665	3,136		3,136	7	C	6/1-10/30	434	217	328		217	217	217
S	Sweetwater	0666	221		221	2	C	5/1-6/1	23	23	38		23	23	23
S	Fossil Basin	0667	1,479		1,479	4	C	5/15-11/1	117	64	103		64	64	64
S	Tucker-Feely Tract	0668	650		650	3	C	6/1-12/15	45	40	50		40	40	40
S	Granite-Moore	0669	1,784		1,784	2	C	6/1-11/30	220	122	154		92	92	92
S	Sodak Mine	0670	1,588		1,588	4	C	10/1-5/31	349	167	156		167	167	167
S	V.C. Custodial	0671	1,988		1,988	3	C	6/1-11/30	165	160	394		160	160	160
S	Belle	0672	220		220	2	C	8/1-10/15	23	23	56		23	23	23
S	Hungry Hollow	0673	329		329	1	C	5/15-6/10	35	30	45		30	30	30
S	Idaho	0676	297		297	1	C	8/15-10/31	38	37	62		37	37	37
S	Spring Brook	0677	1,805		1,805	3	C	4/15-12/31	268	259	412		259	259	259
S	Lark	0678	1,035		1,035	1	C	5/1-11/30	90	89	184		89	89	89
S	Sand Coulee	0679	756		756	1	C	6/1-10/10	52	47	108		47	47	47

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			Acres						Range Survey		Current Permitted Use	Average Actual Use	Proposed Management		Forage* Potential
Grazing System	Allotment Name	Allotment Number	BLM	Other	Total	PAS	Kind of Livestock	Proposed Season of Use	Total	Usable			Initial	25-Year* Projection	
S	Timber Creek	0681	282		282	3	C	6/1-10/15	32	9	16		9	9	9
S	Ruby Dam	0682	297		297	1	C	7/1-9/30	28	5	5		5	5	5
S	Cabin Creek	0704	175	150	325	1	C	6/15-10/30	60	60	38		60	60	60
S	Wildwood Land & Cattle Co.	0705	360		360	3	C	6/26-9/30	59	45	46		26	26	26
S	Stibal	0707	885		885	4	C	4/15-11/30	366	234	51		234	234	234
S	Slanger	0712	280	100	380	1	C	6/1-8/30	44	22	18		22	22	22
S	Turner	0715	320		320	1	C	6/1-10/30	253	76	120		76	76	76
S	Stanford	0717	320	180	500	1	C	4/1-11/30	86	86	178		86	86	86
S	Farley-Shale	0718	274		274	1	C	6/15-10/30	9	4	32		4	4	4
S	Snowline Isolated	0719	359		359	7	C	6/1-10/15	164	164	24		164	164	164
S	Reservoir Creek	0723	240		240	2	C	7/1-8/14	11	11	30		11	11	11
S	Roe Ranch	0729	110		110	2	C	4/1-10/30	14	14	3		14	14	14
S	G.W. Jones	0731	120	1,120	1,240	1	C	6/1-10/15	27	26	41		26	26	26
S	Holton Brothers	0733	445	1,100	1,545	3	C	6/1-11/30	113	75	75		75	75	75
S	Davis	0737	390		390	2	C	6/1-10/1	30	18	24		18	18	18
S	Clemow Ranches	0742	80		80	1	C	5/1-12/30	57	32	16		32	32	32
S	Lester Else Ranch	0744	40		40	1	C	7/1-12/31	26	10	5		10	10	10
S	McKnight Creek	0746	990	3,010	4,000	3	C	6/1-11/30	304	304	144		304	304	304
S	Mill Point	0751	985	290	1,275	1	C	5/1-6/30; 10/15-12/30	118	103	53		103	103	103
S	Barrett Ranch	0754	25		25	2	C	10/1-5/15; 6/15-11/30,	3	2	10		2	2	2
S	Alkali Creek	0755	492		492	3	C	5/1-8/30	61	61	87		61	61	61
S	Frenchie Creek	0756	160	640	800	1	C	5/15-11/30	14	9	9		9	9	9

S	Road Agent Rock	0759	335		335	1	C	5/15-11/30	41	41	11		41	41	41
S	Shaffner	0760	200		200	1	C	11/1-6/1	17	17	27		17	17	17
S	Pierce S.G.C.	0762	220		220	2	C	6/1-10/31	26	26	27		26	26	26
Subtotal, Non-AMPs			122,682	124,356	247,038				22,193	16,707	19,155		16,461	16,461	16,461
Unallotted Areas															
U	Aspen	Unlsd.	87	400	487		N/A	N/A	4	0	N/A		0	0	0
U	Badger	Unlsd.	80		80	1	N/A	N/A	19	0	N/A		0	0	0
U	Bear Gulch	Unlsd.	1,568	1,680	3,248	2	N/A	N/A	0	0	N/A		0	0	0
U	Blain Spring	Unlsd.	76		76	1	N/A	N/A	26	0	N/A		0	0	0
U	Bureau of Reclamation	Unlsd.	160		160	1	N/A	N/A	23	0	N/A		0	0	0
U	Caboose Canyon	Unlsd.	160		160	1	N/A	N/A	40	0	N/A		0	0	0
U	Charcoal Mountain	Unlsd.	1,927		1,927		N/A	N/A	0	0	N/A		0	0	0
U	Clovis Gulch	Unlsd.	40		40	1	N/A	N/A	3	0	N/A		0	0	0
U	Deadwood Gulch	Unlsd.	370	0	370	1	N/A	N/A	38	0	N/A		0	0	0
U	Dog Paw	Unlsd.	44		44	2	N/A	N/A	3	0	N/A		0	0	0
U	Dog Town	Unlsd.	34		34	1	N/A	N/A	1	0	N/A		0	0	0
U	Dry Creek	Unlsd.	34		34	1	C	N/A	3	0	N/A		0	0	0
U	East Fork	Unlsd.	251		251	1	N/A	N/A	49	0	N/A		0	0	0
U	Fox Gulch	Unlsd.	160		160	1	H	N/A	37	32	N/A		0	0	0
U	Game Range	Unlsd.	560		560	1	N/A	N/A	144	0	N/A		0	0	0
U	Goat Mountain	Unlsd.	1,389		1,389		N/A	N/A	0	0	N/A		0	0	0
U	Irishman's	Unlsd.	3,882		3,882	1	N/A	N/A	69	0	N/A		0	0	0
U	Lodgepole	Unlsd.	80		80	1	N/A	N/A	4	0	N/A		0	0	0
U	Mahogany	Unlsd.	286		286	1	N/A	N/A	29	0	N/A		0	0	0
U	Maiden Rock	Unlsd.	59		59	1	N/A	N/A	0	0	N/A		0	0	0

*The 25-year projections and forage potentials are not shown as no intensive management has been proposed on non-AMP allotments and unallotted areas.

Grazing System	Allotment Name	Allotment Number	Acres			PAS	Kind of Livestock	Proposed Season of Use	BLM only--Livestock Forage Production (AUMs)						
									Range Survey		Current Permitted Use	Average Actual Use	Proposed Management		Forage* Potential
			BLM	Other	Total				Total	Usable			Initial	25-Year* Projection	
U	Montana Unleased	Unlsd.	320		320	1	N/A	N/A	53	0	N/A		0	0	0
U	Pony	Unlsd.	9		9	1	N/A	N/A	2	0	N/A		0	0	0
U	Red Bluff	Unlsd.	863		863		C,S	N/A	239	0	N/A		0	0	0
U	Red Mountain Campground	Unlsd.	224		224	1	C	N/A	38	0	N/A		0	0	0
U	Retort Mountain	Unlsd.	1,400		1,400	1	N/A	N/A	42	0	N/A		0	0	0
U	Rosy Finch	Unlsd.	1,200	130	1,330	1	N/A	N/A	147	0	N/A		0	0	0
U	Ruby Mountain	Unlsd.	12,640		12,640	1	N/A	N/A	0	0	N/A		0	0	0
U	Sand Creek	Unlsd.	62		62	3	C	N/A	10	0	N/A		0	0	0
U	Sandpiper	Unlsd.	114	0	114	1	N/A	N/A	11	0	N/A		0	0	0
U	Sheep Mountain	Unlsd.	2,559		2,559	1	N/A	N/A	254	0	N/A		0	0	0
U	Shepherd's Cross	Unlsd.	305		305	1	N/A	N/A	50	0	N/A		0	0	0
U	Shrike	Unlsd.	400	0	400	1	C	N/A	150	0	N/A		0	0	0
U	Snowberry	Unlsd.	40		40	1	C	N/A	1	0	N/A		0	0	0
U	Sourdough	Unlsd.	960		960	1	S	N/A	391	0	N/A		0	0	0
U	Swamp Creek	Unlsd.	40		40	1	C	N/A	32	9	N/A		0	0	0
U	Two Heart	Unlsd.	92		92	1	C	N/A	6	0	N/A		0	0	0
U	Harry Shaw	0431	7	1,480	1,487	1	C	N/A	2	0	4		0	0	0
U	Wigwam Creek	0503	640		640	1	C	N/A	90	49	49		0	0	0
U	MCCSA	0505	160		160	1	N/A	N/A	1	0	11		0	0	0
U	Big Hole	0515	160		160	1	N/A	N/A	11	0	15		0	0	0
U	Overnite	0520	5	330	335	1	N/A	N/A	1	0	1		0	0	0
U	Axes Canyon	0535	74		74	2	N/A	N/A	3	0	2		0	0	0

U	Corral Creek	0543	400	560	960	2	C	N/A	24	12	27		0	0	0
U	Jumping Horse	0546	40		40	1	N/A	N/A	0	0	2		0	0	0
U	Rio Puerco	0639	40	170	210	1	C	N/A	12	12	0		0	0	0
U	Stone Creek	0674	40		40	1	N/A	N/A	0	0	0		0	0	0
U	McHessor Creek	0680	1,237		1,237	3	C	N/A	50	20	0		0	0	0
U	Tom Creek	0701	4,120		4,120	1	N/A	N/A	300	0	0		0	0	0
U	Rock-Moose	0721	1,358	23,000	24,358	2	C	N/A	64	22	91		0	0	0
U	Flying N	0724	120		120	1	C	N/A	11	11	15		0	0	0
U	Big Hole Grazing Association	0743	314	600	914	2	C	N/A	36	34	54		0	0	0
	Subtotal, Unallotted Areas		41,190	28,350	69,540				2,523	192	271		0	0	0
	Grand Total, EIS Area		954,626	673,613[a]	1,628,239				104,398[b]	126,929	128,437[c]	44,287	110,033	147,085[d]	229,145

*Since intensive management is not proposed on non-AMPs and unallotted areas, the proposed initial stocking level is shown for the respective 25-year and forage potential projections.

SOURCE: BLM, 1979.

a. "Other Acres" shown for non-AMPs and unallotted areas signifies that the allotment boundary has been identified. If a blank is shown, the allotment boundary has not been identified, and therefore no acreage has been computed.

b. A total of 66,920 livestock AUMs have not been identified under the total range survey column for existing and revised AMPs, as they were not used for a basis of comparison. Therefore, the adjusted total livestock forage via range survey is 171,318 AUMs.

c. This is total current grazing privileges derived from the Range Management Automated System (RMAS). Average actual use was used for alternative comparison purposes on the 48 existing and revised AMPs. The difference amounts to 3,060 AUMs; therefore, the adjusted grazing privileges figure is 125,377 AUMs.

d. This figure is the total forage produced over the long term. Based on the proposed allocation level of 86% of the additional forage produced from AMPs to livestock, 141,897 AUMs would be allocated or licensed to livestock. These 141,897 AUMs represent a 13% and 29% increase from current licensed use and the proposed initial stocking level, respectively.

APPENDIX 2:
METHODOLOGY FOR DETERMINING STOCKING RATES, LIVESTOCK FORAGE ALLOCATION, AND ECOLOGICAL RANGE CONDITION

Field data from the ocular reconnaissance forage survey conducted in the Mountain Foothills EIS study area during 1976, 1977, and 1978 were used as a basis for estimating current carrying capacities on proposed AMPs and non-AMPs. Adjustments made for unsuitable range, for partially usable range, and for wildlife, recreation, and watershed allocations were determined through the Multiple Use Planning System before proposed initial stocking rates were set.

On the 48 operational AMPs, actual use, range condition, and trend were considered in determining the current carrying capacities, and adjustments in stocking rates were modified by MFP-2 allocations to determine proposed initial stocking rates. Present ecological condition was determined through the use of technicians' guides developed by the Soil Conservation Service (SCS) and from field data from the ocular reconnaissance forage survey.

OCULAR RECONNAISSANCE METHOD

The ocular reconnaissance forage survey method *(BLM Manual, section 4412.11A)* is a system of inventorying vegetation by estimating total forage density and percentage composition, by species, in a range type. Range types are mapping units used in forage surveys, delineated and subdivided as necessary on the basis of abundance of vegetation, species composition, slope, exposure, kind of soil, and erosion.

Density consists of general ocular estimates of overhead (vertical) ground cover for the current year's growth of all usable vegetation on each range type. Density is recorded as the decimal proportion of the ground that is covered as viewed from directly above. Composition values for each species are obtained through estimates of the percentage of the total density attributable to each.

Lists of proper use factors (PUF) are prepared for each plant species. Proper use for a particular plant is the degree to which its current annual growth will be utilized by a grazing animal when the range is properly used. For the Mountain Foothills EIS study area, proper use tables from a number of nearby areas were compared, adapted to local plant species, and adjusted for grazing patterns observed in this local area.

The proper use pastures were selected to be representative of the survey area done by that particular survey crew. The same persons that did the range survey did the proper use pasture survey. Selecting good proper use pastures was not easy. In order to qualify, the pasture must have a good actual use record, be representative of the area being surveyed (similar soil, vegetation, climatic influences) and be interpreted as "properly used." Proper use was determined by some utilization studies and professional judgment.

It is important to remember that a forage inventory survey is a best estimate at a point in time and space as to what a particular piece of rangeland can support. The actual grazing capacity on a piece of ground depends on a variety of ecological circumstances and on the grazing program, and is evidenced by adequate trend, accurate actual use information, and livestock performance. When trend and actual use were available, they were used in lieu of survey information.

Proper use factors for each species are multiplied by the percentage of that species in the range type and added together to arrive at the average proper use factor. This figure is then multiplied by the average density for the type, to obtain a forage acre factor (FAF). The FAF is multiplied by the percentage of usable forage to obtain a net FAF.

The forage acre requirement (FAR) is determined by study of a proper use pasture in which actual use is known. The acres of each type are multiplied by the FAF for that type to determine forage acres for each type. These are added, then the sum is divided by AUMs of actual (proper) use to determine the FAR. This FAR is divided by the net FAF to determine the grazing capacity in acres per animal unit month (AUM). See example AP2-1 for a sample ocular reconnaissance forage survey type writeup.

FORAGE ALLOCATION

The following discussion reconstructs total annual vegetation production and major allocation levels. The basic concern is how much of the vegetation production is being allocated to livestock grazing, wildlife, watershed, and other uses.

Table AP2-1 summarizes producton and allocation. Examples are shown for one existing AMP, one proposed AMP, and one non-AMP.

Ocular reconnaissance writeups were used to determine the portion of the total annual production that is palatable and usable under proper use. From this, the total annual production was computed. The average cattle proper use factor (CPUF) for each type writeup was multiplied by the acreage of that type. These figures were then added together and the total was divided by the total acreage to give the percentage of the total annual production (TAP) that was palatable to cattle and usable under proper use (column 4). Dividing the known AUMs by this figure gave the total annual production (column 3).

From the palatable, usable livestock forage, utilization deductions were made for unsuitable range on the basis of such factors as steep, rocky, timbered, or unsuitable soils, lack of water, and distance from water (column 5). Mueggler's article discussing livestock distribution was sometimes used as a guide to make utilizaton deductions (Mueggler 1965). Other deductions were made for the watershed, wildlife, and recreation allocations that came out of the recently updated multiple use planning documents (column 6). The proposed initial stocking rate (column 7) is the remainder of the TAP after all the above deductions. Percentage figures in parentheses are percentages of the TAP.

Information from soil surveys by the Soil Conservation Service and the University of Montana was used to determine total potential production. The average potential productivity (pounds per acre) of each soil mapping unit was multiplied by acres of that unit in the AMP, and these figures were added to determine total potential annual production. Since the Soil Conservation Service listed high and low figures for "favorable" and "unfavorable" years, two sets of figures are shown. This total annual production was then divided by 1,800 pounds to convert the figure to AUMs.

DETERMINATION OF PRESENT ECOLOGICAL CONDITION

Present range condition was determined by application of ocular reconnaissance data to the SCS technicians' guides. The various range sites were mapped by precipitation zone. The estimated vegetation composition of each range site, as determined by ocular reconnaissance, was compared with the climax plant community of the same range site in the same precipitation zone, with the use of the technicians' guides.

The climax plant community for a range site was determined from a protected or relatively undisturbed rangeland. The plant community of the least disturbed range sites was considered the potential vegetation. The degree to which the present plant community varies from the climax plant community is described by four condition classes: excellent, good, fair, and poor. Example AP2-2 shows how the ocular reconnaissance data and technicians' guides were used to develop range condition classes.

It is recognized that species composition as determined by ocular reconnaissance (basal area) is not directly related to species composition per the ecological site method (weight). Adjusting ocular reconnaissance composition by the use of relative yield factors was considered, but ruled out because of the different kinds of vegetation that occur in the Canadian prairies versus the Mountain Foothills area of southwestern Montana. Nonetheless, we consider these estimates to be conservative and valid on a relative basis.

EXAMPLE AP2-1

Form 4412–1
(November 1970)

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORAGE SURVEY TYPE WRITEUP
(OCULAR RECONNAISSANCE METHOD)

Writeup No. JM-100
Date 8/17/79
Aerial Photo No. 12-95-21

Examiner JM	KIND OF GRAZING ANIMAL *	SEASON OF USE	SECTIONS	TWP.	RGE.	MER.
Type 012/Agsp-Feid	Cattle		10,11	2 N	12 W	MT
Ac/AUM 6.1						

	SPECIES	TOTAL ALLOWABLE PUF	% COMPOSITION	CATTLE PUF	COMP. X C PUF	SHEEP PUF	COMP. X S PUF	DEER PUF	COMP. X D PUF	PUF	COMP. X ___ PUF
GRASSES	Agsp		44	50	.22						
	Feid		32	40	.128						
	Kocr		5	45	.0225						
	CARE		8	40	.032						
	SUBTOTAL		89								
FORBS	Erum		T	0	0						
	Pogr		2	5	.001						
	Getr		4	5	.002						
	SUBTOTAL		6								
SHRUBS	Artr		5	0	0						
	Chvi		T								
	RIBE		T								
	SUBTOTAL		5								
	TOTALS		100		.4055						

Av C PUF .4055 × Av Den 18% = FAF .073 × 85 % Util = Net FAF .062 ; FAR .38 ÷ Net FAF .062 = 6.1 Ac/AUM

Av S PUF ____ × Av Den ____ = FAF ____ × ____ % Util = Net FAF ____ ; FAR ____ ÷ Net FAF ____ = ____ Ac/AUM

Av D PUF ____ × Av Den ____ = FAF ____ × ____ % Util = Net FAF ____ ; FAR ____ ÷ Net FAF ____ = ____ Ac/AUM

Av PUF ____ × Av Den ____ = FAF ____ × ____ % Util = Net FAF ____ ; FAR ____ ÷ Net FAF ____ = ____ Ac/AUM

Total Net FAF ____ ; FAR ____ ÷ Net FAF ____ = ____ Ac/AUM

*Livestock and major game species. *(Other game species making inappreciable use are:*

TABLE AP2-1: VEGETATIVE PRODUCTION AND ALLOCATION

Allotment Name and Number (1)	Basis of Estimation (2)	Total Annual Production (AUMs) (3)	Potential Forage (AUMs) (4)	Unsuitable (AUMs) (5)	MFP-2 Reductions (AUMs) (6)	Allocated to Livestock (AUMs) (7)
0317 Greenstone	Ocular reconnaissance	1,070	321 (30%)	32 (3%)	73 (7%)	216 (20%)
	Soil survey	946-1,237				
0320 Brown's-Cherry Creek	Ocular reconnaissance	1,732	485 (28%)	238 (14%)	66 (4%)	181 (10%)
	Soil survey	1,002-1,227				
0417 Michael	Ocular reconnaissance	519	161 (31%)	1 (<1%)	0 (0%)	160 (31%)
	Soil survey	325-523				
	Estimate for the Mountain Foothills EIS area	571,000	171,300 (30%)	43,350 (8%)	16,750 (3%)	111,052 (19%)

SOURCE: BLM, 1979

EXAMPLE AP2-2
RANGE SITE AND CONDITION WRITE-UP
(1977 SCS Technician's Guide)

Foothills and Mountains of Montana
15-19 inch precipitation zone
Silty Range Site

Plant Species	Current Composition[a]	Percent Allowable in Climax[b]
Bluebunch wheatgrass (*Agropyron spicatum*)	44%	44%
Idaho fescue (*Festuca idahoensis*)	25%	20%
Prairie junegrass (*Koeleria cristata*)	8%	5%
Dandelion (*Taraxacum officinale*)	3%	0%
Big sagebrush (*Artemisia tridentata*)	20%	5%
	100%	74%

RANGE CONDITION CLASSES

Score	Rating
76-100	Excellent
51-75	Good
26-50	Fair
0-25	Poor

SOURCE: BLM, 1979

[a] This is composition as determined by ocular reconnaissance method (see *BLM Manual*, section 4412.11A).

[b] This is composition by weight.

APPENDIX 3: CURRENT AND PROJECTED RANGE CONDITION AND CURRENT TREND OF RANGE CONDITION

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)										Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected for Year 2010 (proposed action)									
				Excellent	Good	Fair	Poor	Not Identi- fied	Excellent	Good	Fair	Poor	Not Identi- fied	Up	Static	Down	Undeter- mined	
Existing AMPs with RR Grazing System																		
RR	Pine Creek	0001	Grass	--	277	816	--	--	22	579	492	--	--	1,780	--	--	208	1,988
			Meadow	--	--	258	--	--	--	137	121	--	--					
			Sage	--	596	--	--	--	--	596	--	--	--					
			Conifer	--	--	41	--	--	--	--	41	--	--					
RR	Selway	0004	Grass	129	149	36	--	--	141	152	21	--	--	--	1,318	--	--	1,318
			Meadow	--	--	--	49	--	--	--	28	21	--					
			Sage	468	344	--	--	--	468	344	--	--	--					
			Conifer	--	--	--	143	--	--	--	--	143	--					
RR	Stonehouse	0005	Grass	1,683	1,914	3,343	--	--	1,827	3,024	2,089	--	--	--	28,551	--	--	28,551
			Sage	35	14,004	6,761	--	--	35	16,539	4,226	--	--					
			Mtn. shrub	106	58	--	--	--	106	58	--	--	--					
			Conifer	--	--	526	--	121	--	--	526	--	121					
RR	Armstead-Upper Sage	0007	Grass	975	3,786	2,830	--	--	1,278	5,153	1,160	--	--	3,560	5,654	1,256	--	10,470
			Meadow	--	18	--	--	--	10	8	--	--	--					
			Sage	--	2,812	49	--	--	--	2,832	29	--	--					
RR	Mosman	0011	Grass	1,665	1,940	--	--	--	1,825	1,780	--	--	--	--	3,252	353	--	3,605
RR	Matador	0012	Grass	2,340	15,982	1,655	--	--	3,635	15,357	985	--	--	39,474	--	--	183	39,657
			Sage	--	14,886	4,690	--	--	--	16,785	2,791	--	--					
			Mtn. shrub	39	--	--	--	--	39	--	--	--	--					
			Conifer	--	--	--	--	65	--	--	--	--	65					
RR,DR	Gallagher Mtn.	0013	Grass	939	5,121	703	--	--	1,346	4,993	424	--	--	12,117	1,592	--	808	14,517
			Sage	1,616	5,080	28	--	--	1,616	5,091	17	--	--					
			Conifer	--	34	36	--	--	--	34	36	--	--					
			Waste	--	--	--	--	960	--	--	--	--	960					
RR	Barretts	0014	Grass	--	--	114	--	--	--	46	68	--	--	--	1,648	--	--	1,648
			Sage	--	1,097	355	--	--	--	1,241	211	--	--					
			Conifer	--	--	--	--	82	--	--	--	--	82					
RR	Bear Creek	0018	Sage	--	797	--	--	--	--	797	--	--	--	1,679	--	--	--	1,679
			Conifer	--	--	--	--	882	--	--	--	--	882					
RR	Rape Creek	0019	Grass	1,743	506	8	--	--	1,786	466	5	--	--	--	--	9,662	202	9,864
			Meadow	--	--	--	187	--	--	--	105	82	--					
			Sage	--	3,906	3,351	148	--	--	5,313	2,027	65	--					
			Waste	--	--	15	--	--	--	--	15	--	--					
RR,D	Tallent	0027	Grass	744	236	370	--	--	762	357	231	--	--	3,150	--	--	--	3,150
			Meadow	--	80	--	--	--	40	40	--	--	--					
			Sage	130	1,090	360	--	--	130	1,225	225	--	--					
			Mtn. shrub	140	--	--	--	--	140	--	--	--	--					
RR	Baldy Mtn.	0037	Grass	--	1,558	939	--	--	110	1,779	608	--	--	8,525	--	--	--	8,525
			Sage	1,756	782	379	--	--	1,756	916	245	--	--					
			Mtn. shrub	357	--	--	--	--	357	--	--	--	--					
			Conifer	--	--	--	--	2,754	--	--	--	--	2,754					

RR	Muddy Creek	0039	Grass	1,048	1,428	--	--	--	1,162	1,314	--	--	--	--	14,305	--	--	14,305
			Sage	96	8,586	858	--	--	96	8,927	517	--	--					
			Conifer	--	--	--	--	2,289	--	--	--	--	2,289					
RR,D	Price Creek	0040	Grass	--	--	577	--	--	--	229	348	--	--	4,141	2,040	80	950	7,211
			Meadow	--	--	144	--	--	--	76	68	--	--					
			Sage	--	1,514	2,019	--	--	--	2,317	1,216	--	--					
			Conifer	--	--	--	--	2,885	--	--	--	--	2,885					
			Waste	--	--	--	--	72	--	--	--	--	72					
RR	Meadow Creek	0042	Grass	--	166	--	--	--	14	152	--	--	--	186	974	--	--	1,160
			Meadow	--	91	--	58	--	50	41	32	26	--					
			Sage	--	845	--	--	--	--	845	--	--	--					
RR	Copp-Jackson	0301	Grass	102	216	--	--	--	119	199	--	--	--	--	2,544	--	393	2,937
			Sage	--	438	56	--	--	--	460	34	--	--					
			Conifer	--	10	690	--	--	--	10	690	--	--					
			Waste	--	--	--	--	1,425	--	--	--	--	1,425					
RR	Moose Creek	0303	Grass	702	700	299	--	205	760	765	176	--	205	5,133	--	--	825	5,958
			Sage	1,616	1,144	293	--	154	1,616	1,265	172	--	154					
			Mtn. shrub	20	--	--	--	--	20	--	--	--	--					
			Conifer	242	--	127	--	456	242	--	127	--	456					
RR	Rochester Basin	0324	Grass	1,450	1,703	1,862	--	--	1,588	2,319	1,108	--	--	--	12,343	--	688	13,031
			Sage	1,158	4,004	1,513	--	--	1,158	4,617	900	--	--					
			Mtn. shrub	--	1,124	--	85	--	--	1,124	--	85	--					
			Conifer	--	132	--	--	--	--	132	--	--	--					
RR	Deer Canyon	0749	Sage	83	115	180	--	--	83	176	119	--	--	434	--	--	--	434
			Mtn. shrub	32	--	--	--	--	32	--	--	--	--					
			Conifer	--	--	--	--	24	--	--	--	--	24					
Subtotal, Existing AMPs with RR Grazing System				21,414	99,269	36,281	670	12,374	24,369	110,610	22,233	422	12,374	80,179	74,221	11,351	4,257	170,008
Revised AMPs with RR Grazing System																		
RR	Clark Canyon	0002	Grass	96	2,509	1,761	--	--	307	3,038	1,021	--	--	4,455	3,562	--	1,070	9,087
			Sage	1,347	1,927	--	--	--	1,347	1,927	--	--	--					
			Conifer	--	--	--	--	1,447	--	--	--	--	1,447					
RR	Crooked Creek	0010	Grass	54	348	2,075	--	--	78	1,040	1,359	--	--	--	--	2,588	--	2,588
			Sage	--	75	36	--	--	--	92	19	--	--					
RR	North Black Canyon	0020	Grass	1,175	758	25	117	--	1,239	705	27	104	--	--	6,188	--	--	6,188
			Meadow	--	--	27	126	--	--	15	83	55	--					
			Sage	--	1,822	655	--	--	--	2,097	380	--	--					
			Mtn. shrub	119	--	--	--	--	119	--	--	--	--					
			Conifer	25	--	15	--	1,324	25	--	15	--	1,324					
RR	Leadman	0021	Grass	622	--	--	--	--	622	--	--	--	--	1,535	--	2,200	--	3,735
			Sage	2,023	303	787	--	--	2,023	604	486	--	--					
RR	Dixon Mountain	0022	Grass	219	343	--	--	--	245	317	--	--	--	110	1,000	612	282	2,004
			Sage	--	924	--	--	--	--	924	--	--	--					
			Mtn. shrub	195	--	--	--	--	195	--	--	--	--					
			Conifer	--	--	323	--	--	--	--	323	--	--					
RR	Anderson Field	0026	Grass	862	1,400	--	--	--	973	1,289	--	--	--	--	6,382	--	43	6,425
			Sage	292	3,272	379	--	--	292	3,423	228	--	--					
			Conifer	--	--	--	--	220	--	--	--	--	220					

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)										Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected for Year 2010 (proposed action)									
				Excellent	Good	Fair	Poor	Not Identi- fied	Excellent	Good	Fair	Poor	Not Identi- fied	Up	Static	Down	Undeter- mined	
RR	Snowline	0029	Grass	287	3,982	2,732	--	--	550	4,621	1,830	--	--	4,202	1,579	3,224	199	9,204
			Meadow	--	--	106	--	--	--	47	59	--	--					
			Sage	--	561	1,264	--	--	--	978	847	--	--					
			Mtn. shrub	--	--	73	--	--	--	--	73	--	--					
			Conifer	--	--	--	--	199	--	--	--	--	199					
RR	Reservoir Creek	0030	Grass	2,347	2,244	522	--	--	2,535	2,275	303	--	--	--	--	12,409	--	12,409
			Sage	722	4,186	2,351	19	--	722	5,173	1,375	8	--					
			Conifer	--	18	--	--	--	--	18	--	--	--					
RR	P.H.W.	0031	Grass	747	1,774	--	13	--	893	1,628	1	12	--	5,532	3,180	--	334	9,046
			Sage	1,669	4,521	--	183	--	1,669	4,521	101	82	--					
			Conifer	--	--	139	--	--	--	--	139	--	--					
RR	Exchange Pasture	0032	Grass	628	--	--	--	--	628	--	--	--	--	--	--	2,306	--	2,306
			Sage	1,458	10	210	--	--	1,458	90	130	--	--					
RR	Cross Allotment	0033	Grass	90	361	--	--	--	117	334	--	--	--	--	3,671	--	--	3,671
			Sage	--	71	3,149	--	--	--	1,252	1,968	--	--					
RR	Red Mine	0034	Grass	1,640	682	--	--	--	1,695	627	--	--	--	--	--	3,560	222	3,782
			Sage	60	477	633	--	--	60	733	377	--	--					
			Conifer	--	--	--	--	290	--	--	--	--	290					
RR	Brenner Seeding	0035	Grass	665	1,404	--	--	--	781	1,288	--	--	--	--	1,652	930	49	2,631
			Sage	406	10	122	24	--	406	60	85	11	--					
RR	Buck Creek	0038	Grass	2,581	5,051	497	116	--	3,001	4,829	311	104	--	--	15,817	--	--	15,817
			Sage	189	4,839	2,429	--	--	189	5,805	1,463	--	--					
			Mtn. shrub	115	--	--	--	--	115	--	--	--	--					
RR	Camp Creek	0308	Grass	318	2,544	3,862	714	--	513	3,826	2,458	641	--	--	22,393	5,278	1,403	29,074
			Meadow	--	39	--	--	--	--	39	--	--	--					
			Sage	1,344	9,389	3,587	29	--	1,344	10,761	2,230	14	--					
			Mtn. shrub	1,760	2,669	--	--	--	1,760	2,669	--	--	--					
			Conifer	1,753	105	424	--	--	1,753	105	424	--	--					
			Waste	--	--	--	--	537	--	--	--	--	537					
RR	Lelow Basin	0335	Grass	--	--	121	--	--	--	50	71	--	--	--	993	635	--	1,628
			Meadow	--	32	--	--	--	18	14	--	--	--					
			Sage	--	1,302	173	--	--	201	1,196	78	--	--					
RR	Sweetwater	0471	Grass	--	357	146	--	--	29	388	86	--	--	--	12,038	--	--	12,038
			Sage	--	2,802	7,921	--	--	1,513	4,537	4,673	--	--					
			Mtn. shrub	62	276	296	--	--	62	276	296	--	--					
			Conifer	--	--	--	--	178	--	--	--	--	178					
Subtotal, Revised AMPs with RR Grazing System				25,870	63,387	36,840	1,341	4,195	29,477	73,611	23,319	1,031	4,195	15,834	78,455	33,742	3,602	131,633

Proposed AMPs with RR Grazing System

RR	Little Divide	0101	Grass	107	--	203	--	--	107	81	122	--	--	--	2,846	1,880	200	4,926
			Meadow	--	--	240	--	--	--	127	113	--	--					
			Sage	--	3,226	801	--	--	--	3,544	483	--	--					
			Conifer	--	--	48	--	295	--	--	48	--	295					
			Waste	--	--	--	--	6	--	--	--	--	6					
RR	Cabin Creek	0102	Meadow	--	255	44	--	--	143	137	19	--	--	--	947	--	--	947
			Sage	--	602	46	--	--	--	621	27	--	--					
RR	Morrison-Sweeney	0102	Grass	42	--	--	--	--	42	--	--	--	--	--	360	--	--	360
			Sage	--	318	--	--	--	--	318	--	--	--					
RR	Hansen Creek	0108	Grass	3,662	--	--	--	--	3,662	--	--	--	--	--	4,153	7,200	2,181	13,534
			Sage	539	6,576	1,461	--	--	539	7,157	880	--	--					
			Mtn. shrub	243	--	--	--	--	243	--	--	--	--					
			Conifer	--	200	853	--	--	--	200	853	--	--					
RR	Pipe Organ Rock	0110	Grass	242	--	--	--	--	242	--	--	--	--	--	1,016	--	--	1,016
			Sage	662	13	--	--	--	662	13	--	--	--					
			Conifer	--	99	--	--	--	--	99	--	--	--					
RR	Red Canyon	0113	Grass	200	1,855	--	--	--	342	1,713	--	--	--	--	2,127	--	--	2,127
			Sage	--	27	45	--	--	--	44	28	--	--					
RR,D	Bill Hill Creek	0114	Grass	209	231	--	--	--	224	216	--	--	--	1,564	--	--	--	1,564
			Sage	80	954	90	--	--	80	982	62	--	--					
RR	Pass Creek	0119	Grass	--	--	439	--	--	--	184	255	--	--	150	824	1,300	14	2,288
			Sage	--	1,849	--	--	--	--	1,849	--	--	--					
RR	Taylor Creek-• Buffalo Creek	0122	Grass	520	1,408	--	--	--	634	1,294	--	--	--	--	--	5,646	--	5,646
			Sage	--	3,105	524	--	--	--	3,317	312	--	--					
			Conifer	--	--	--	--	89	--	--	--	--	89					
RR	Huntsman	0123	Grass	1,260	367	--	--	--	1,291	336	--	--	--	541	1,086	--	--	1,627
RR	Cedar Creek	0124	Grass	--	204	--	--	--	15	189	--	--	--	--	--	3,998	--	3,998
			Sage	--	378	3,275	--	--	--	1,984	1,669	--	--					
			Conifer	--	--	--	--	141	--	--	--	--	141					
RR	Ellis Peak	0126	Grass	--	--	293	--	--	--	110	183	--	--	--	1,385	1,868	--	3,253
			Meadow	--	--	126	--	--	--	63	63	--	--					
			Sage	46	2,401	96	--	--	46	2,461	36	--	--					
			Mtn. shrub	46	--	--	--	--	46	--	--	--	--					
			Conifer	--	131	70	--	--	--	131	70	--	--					
			Waste	--	--	--	--	44	--	--	--	--	44					
RR	Big Spring Gulch	0129	Grass	1,297	613	788	--	--	1,343	863	492	--	--	--	4,420	--	--	4,420
			Sage	--	1,548	174	--	--	--	1,613	109	--	--					
RR	South Black Canyon	0130	Grass	--	747	--	--	--	50	697	--	--	--	--	--	3,538	132	3,670
			Meadow	--	--	34	--	--	--	15	19	--	--					
			Sage	504	423	699	--	--	504	659	463	--	--					
			Conifer	--	--	--	--	1,263	--	--	--	--	1,263					
RR,AR	Frying Pan	0131	Grass	43	276	403	492	--	62	399	307	446	--	--	--	2,657	147	2,804
			Sage	--	1,321	--	269	--	--	1,321	126	143	--					

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)										Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected for Year 2010 (proposed action)									
				Excellent	Good	Fair	Poor	Not Identi- fied	Excellent	Good	Fair	Poor	Not Identi- fied	Up	Static	Down	Undeter- mined	
RR	Knox	0136	Grass	911	--	--	--	--	911	--	--	--	--	--	4,342	2,405	--	6,747
			Meadow	--	193	29	--	--	96	111	15	--	--					
			Sage	706	3,458	1,034	19	--	706	3,846	655	10	--					
			Conifer	--	--	50	--	--	--	--	50	--	--					
			Waste	--	--	--	--	347	--	--	--	--	347					
RR	Bull-Heifer Creek	0137	Grass	--	63	--	--	--	5	58	--	--	--	--	--	1,129	--	1,129
			Sage	--	353	713	--	--	140	475	451	--	--					
RR	Kent-Price Canyon	0138	Grass	24	691	123	--	--	584	181	73	--	--	--	--	1,510	326	1,836
			Sage	--	--	672	--	--	672	--	--	--	--					
			Conifer	--	--	--	--	326	--	--	--	--	326					
RR,DR	Mayberry	0143	Grass	1,598	4,520	2,856	--	--	1,978	5,340	1,656	--	--	--	10,338	--	357	10,695
			Sage	50	1,580	--	--	--	50	1,580	--	--	--					
			Conifer	91	--	--	--	--	91	--	--	--	--					
RR	Simpson Creek	0158	Grass	367	27	3	--	--	369	26	2	--	--	830	762	2,540	10	4,142
			Meadow	--	409	240	129	--	225	316	179	58	--					
			Sage	368	2,229	370	--	--	368	2,381	218	--	--					
RR	Phalarope	0177	Grass	1,698	1,204	1,246	262	--	1,788	1,569	817	236	--	--	--	6,921	--	6,921
			Meadow	--	--	359	--	--	--	179	180	--	--					
			Sage	--	308	1,844	--	--	--	999	1,153	--	--					
RR	Peet Rock	0179	Grass	--	--	89	--	--	--	36	53	--	--	--	--	912	--	912
			Meadow	--	--	364	--	--	--	197	167	--	--					
			Sage	--	--	459	--	--	--	186	273	--	--					
RR	Bell Ranch	0197	Grass	--	307	457	--	--	23	455	286	--	--	--	--	2,318	--	2,318
			Sage	--	1,170	314	--	--	--	1,288	196	--	--					
			Waste	--	--	--	--	70	--	--	--	--	70					
RR	Rody	0199	Grass	110	159	71	--	--	114	165	61	--	--	--	1,008	--	--	1,008
			Meadow	--	--	200	--	--	--	36	164	--	--					
			Sage	--	455	13	--	--	--	457	11	--	--					
RR	Four Eyes	0269	Grass	2,105	163	157	--	--	2,117	209	99	--	--	--	2,793	2,300	1,059	6,152
			Sage	735	960	86	55	--	735	992	81	28	--					
			Mtn. shrub	--	--	--	--	504	--	--	--	--	504					
			Conifer	--	--	--	--	1,387	--	--	--	--	1,387					
RR	Lima Peaks	0270	Grass	--	--	448	--	--	--	158	290	--	--	--	120	1,233	214	1,567
			Meadow	--	120	--	--	--	56	64	--	--	--					
			Sage	355	--	417	--	--	355	147	270	--	--					
			Mtn. shrub	13	--	--	--	--	13	--	--	--	--					
			Conifer	--	--	152	--	62	--	--	152	--	62					
RR	Bradley	0302	Sage	--	--	661	145	--	--	314	354	138	--	--	--	806	--	806
RR	Burk-Rieber	0305	Sage	--	25	546	671	--	--	242	685	315	--	--	1,242	--	--	1,242
RR	Glendale Common	0311	Sage	--	440	2,888	--	--	151	1,478	1,699	--	--	--	--	3,328	--	3,328

RR	Maiden Rock	0312	Grass	--	463	--	--	--	34	429	--	--	--	--	1,351	--	--	1,351
			Sage	479	160	--	--	--	479	160	--	--	--					
			Mtn. shrub	224	--	--	--	--	224	--	--	--	--					
			Conifer	--	25	--	--	--	--	25	--	--	--					
RR	Garrison	0314	Grass	--	--	1,034	670	--	--	364	881	459	--	--	4,985	3,559	50	8,594
			Sage	--	--	4,180	1,570	--	--	1,473	3,445	832	--					
			Conifer	--	--	--	126	--	--	--	--	126	--					
			Waste	--	--	--	--	1,014	--	--	--	--	1,014					
RR	Richards	0315	Grass	--	--	--	643	--	--	--	67	576	--	--	--	724	--	724
			Sage	--	--	--	81	--	--	--	42	39	--					
RR	Redfern	0316	Grass	--	171	--	--	--	14	157	--	--	--	--	1,765	--	1,636	3,401
			Sage	--	169	238	--	--	--	265	142	--	--					
			Conifer	--	--	--	102	--	--	--	--	102	--					
			Waste	--	--	--	--	2,721	--	--	--	--	2,721					
RR	Browns Cherry Creek	0320	Grass	--	249	--	--	--	21	228	--	--	--	--	3,294	--	--	3,294
			Meadow	--	159	--	--	--	89	70	--	--	--					
			Sage	--	844	1,858	165	--	844	1,927	96	--	--					
			Conifer	--	--	19	--	--	--	--	19	--	--					
RR	McCartney Mtn.	0323	Grass	40	9,836	9,442	20	--	719	12,414	6,187	18	--	--	24,388	--	--	24,388
			Sage	--	190	3,080	--	--	--	1,253	2,017	--	--					
			Mtn. shrub	740	--	--	--	--	740	--	--	--	--					
			Conifer	--	--	--	--	1,040	--	--	--	--	1,040					
RR	Tungsten Mill	0326	Grass	--	--	560	--	--	--	208	352	--	--	--	1,802	--	78	1,880
			Sage	450	750	30	--	--	450	761	19	--	--					
			Waste	--	--	--	--	90	--	--	--	--	90					
RR	Birch Creek-Willow Creek	0328	Grass	2	25	38	--	--	4	36	25	--	--	--	4,107	--	13	4,120
			Sage	80	1,747	2,228	--	--	80	2,516	1,459	--	--					
RR	Skeeters	0332	Grass	--	30	--	--	--	3	27	--	--	--	--	30	660	--	690
			Sage	--	660	--	--	--	--	660	--	--	--					
RR	Seven Springs-Big Hole	0337	Sage	--	--	2,605	--	--	--	1,016	1,589	--	--	--	--	2,605	--	2,605
RR	Deno Creek	0341	Sage	--	390	--	--	--	--	390	--	--	--	--	--	440	818	1,258
			Conifer	--	--	--	--	64	--	--	--	--	64					
			Waste	--	--	--	--	804	--	--	--	--	804					
RR	Limekiln	0342	Sage	--	459	--	--	--	155	304	--	--	--	--	--	500	1,587	2,087
			Conifer	--	--	271	--	--	--	--	271	--	--					
			Waste	--	--	--	--	1,357	--	--	--	--	1,357					
RR	Twin Adams	0347	Sage	--	1,149	50	--	--	--	1,167	32	--	--	--	649	550	--	1,199
RR	Georgia Gulch	0348	Grass	6	70	--	--	--	12	64	--	--	--	--	2,031	--	25	2,056
			Meadow	--	38	63	--	--	20	51	30	--	--					
			Sage	--	559	1,117	--	--	--	1,003	673	--	--					
			Mtn. shrub	--	178	--	--	--	--	178	--	--	--					
			Conifer	--	--	--	--	25	--	--	--	--	25					
RR	Seyler Pasture	0354	Grass	--	--	2,180	--	--	--	785	1,395	--	--	--	700	2,120	--	2,820
			Sage	--	--	640	--	--	--	247	393	--	--					
RR	Sparrow Ditch	0377	Grass	270	--	--	--	--	270	--	--	--	--	--	288	--	--	288
			Mtn. shrub	--	9	--	--	--	--	9	--	--	--					
			Waste	--	--	--	--	9	--	--	--	--	9					

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)										Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected for Year 2010 (proposed action)									
				Excellent	Good	Fair	Poor	Not Identi- fied	Excellent	Good	Fair	Poor	Not Identi- fied	Up	Static	Down	Undeter- mined	
RR	Shaw Basin	0433	Grass	233	--	78	--	--	233	39	39	--	--	--	632	--	32	664
			Meadow	--	22	--	--	--	11	11	--	--	--					
			Sage	--	--	15	--	--	--	6	9	--	--					
			Mtn. shrub	--	45	--	--	--	--	45	--	--	--					
			Conifer	--	--	--	--	211	--	--	--	--	211					
			Waste	--	--	--	--	60	--	--	--	--	60					
RR	Kountz	0443	Grass	229	785	39	--	--	292	738	23	--	--	256	960	--	132	1,348
			Sage	--	--	8	--	--	--	3	5	--	--					
			Mtn. shrub	58	43	45	--	--	58	43	45	--	--					
			Conifer	--	33	30	--	--	--	33	30	--	--					
			Waste	--	--	--	--	78	--	--	--	--	78					
RR	Wallace Peak	0447	Grass	82	--	--	--	--	82	--	--	--	--	--	220	902	158	1,280
			Meadow	--	57	--	--	--	32	25	--	--	--					
			Sage	--	50	--	--	--	28	22	--	--	--					
			Mtn. shrub	--	9	--	--	--	--	9	--	--	--					
			Waste	--	--	--	--	1,082	--	--	--	--	1,082					
RR	Granite Creek	0468	Grass	--	--	77	--	--	--	31	46	--	--	--	1,248	--	--	1,248
			Sage	--	--	932	--	--	--	377	555	--	--					
			Mtn. shrub	--	--	170	--	--	--	--	170	--	--					
			Conifer	--	--	35	--	--	--	--	35	--	--					
			Waste	--	--	--	--	34	--	--	--	--	34					
RR,D	Belmont	0469	Grass	--	--	2,749	--	--	--	1,093	1,656	--	--	--	--	1,186	8,318	9,504
			Sage	--	1,270	3,985	--	--	--	2,854	2,401	--	--					
			Mtn. shrub	--	--	957	--	--	--	--	957	--	--					
			Conifer	--	543	--	--	--	--	543	--	--	--					
RR	Virginia City	0488	Sage	--	--	2,385	--	--	--	948	1,437	--	--	--	1,706	650	232	2,588
			Mtn. shrub	--	--	93	--	--	--	--	93	--	--					
			Waste	--	--	--	--	110	--	--	--	--	110					
RR	Benchmark	0489	Grass	--	166	400	--	--	13	315	238	--	--	--	--	1,010	400	1,410
			Meadow	1	44	--	--	--	25	20	--	--	--					
			Sage	--	229	513	--	--	--	469	273	--	--					
			Mtn. shrub	--	6	--	--	--	--	6	--	--	--					
			Conifer	--	19	--	--	--	--	19	--	--	--					
			Waste	--	--	--	--	32	--	--	--	--	32					
RR	Barton Gulch	0490	Grass	--	--	160	--	--	--	61	99	--	--	--	--	1,027	2,280	3,307
			Sage	--	--	228	--	--	--	86	142	--	--					
			Conifer	--	--	23	--	--	--	--	23	--	--					
			Waste	--	--	--	--	2,896	--	--	--	--	2,896					
RR	Davey Creek	0497	Grass	--	49	127	--	--	4	98	74	--	--	--	3,750	--	2,082	5,832
			Meadow	--	66	82	--	--	37	75	36	--	--					
			Sage	--	289	688	--	--	--	578	399	--	--					
			Mtn. shrub	--	10	11	--	--	--	10	11	--	--					
			Waste	--	--	--	--	4,510	-	--	--	--	4,510					

RR,D	Stone Creek	0498	Grass	--	265	37	--	--	21	259	22	--	--	--	2,846	--	951	3,797
			Sage	--	273	1,844	--	--	--	1,017	1,100	--	--					
			Mtn. shrub	--	68	100	--	--	--	68	100	--	--					
			Conifer	--	22	--	--	1,061	--	22	--	--	1,061					
			Waste	--	--	--	--	127	--	--	--	--	127					
RR	California Creek	0507	Meadow	--	--	55	--	--	--	29	26	--	--	--	1,547	1,153	498	3,198
			Sage	--	198	1,911	183	--	--	943	1,261	88	--					
			Mtn. shrub	--	24	--	66	--	--	24	--	66	--					
			Waste	--	--	--	--	761	--	--	--	--	761					
RR	Dry Lakes	0526	Sage	--	634	1,527	--	--	--	1,278	883	--	--	2,292	--	--	492	2,784
			Mtn. shrub	--	--	93	--	--	--	--	93	--	--					
			Waste	--	--	--	--	530	--	--	--	--	530					
RR,DR	Copper Mtn.	0531	Meadow	11	55	3	--	--	40	28	1	--	--	--	1,018	1,319	138	2,475
			Sage	--	34	1,049	294	--	--	451	788	138	--					
			Mtn. shrub	--	--	251	--	--	--	--	251	--	--					
			Waste	--	--	--	--	778	--	--	--	--	778					
RR,D,DR	Timber Creek	0533	Grass	--	--	41	--	--	--	15	26	--	--	--	3,383	101	107	3,591
			Meadow	--	54	--	--	--	27	27	--	--	--					
			Sage	--	--	3,230	--	--	--	1,201	2,021	--	--					
			Mtn. shrub	--	78	51	--	--	--	78	51	--	--					
			Conifer	--	--	--	137	--	--	--	--	137	--					
RR	Nicholia	0699	Grass	42	2,088	96	--	--	183	1,979	64	--	--	400	4,461	2,100	2,656	9,617
			Sage	331	3,631	1,399	--	--	331	4,103	927	--	--					
			Mtn. shrub	--	639	--	--	--	--	639	--	--	--					
			Conifer	--	---	--	--	917	--	--	--	--	917					
			Waste	--	--	--	--	474	--	--	--	--	474					
RR	Thomas	0702	Grass	--	--	185	--	--	--	78	107	--	--	--	--	1,521	--	1,521
			Meadow	--	--	22	--	--	--	12	10	--	--					
			Sage	--	276	1,038	--	--	--	713	601	--	--					
RR	Wolfe	0703	Grass	--	120	492	--	--	9	288	315	--	--	--	431	209	--	640
			Mtn. shrub	28	--	--	--	--	28	--	--	--	--					
RR	Fish Creek	0708	Grass	--	64	119	--	--	47	67	69	--	--	--	--	4,166	--	4,166
			Sage	2,948	1,035	--	--	--	2,948	1,035	--	--	--					
RR	Welborn-Dell	0714	Grass	283	749	311	--	--	341	723	279	--	--	--	1,425	--	--	1,425
			Mtn. shrub	82	--	--	--	--	82	--	--	--	--					
RR	Horse Prairie Livestock	0725	Grass	--	510	--	--	--	43	467	--	--	--	--	--	2,550	53	2,603
			Meadow	--	--	29	--	--	--	16	13	--	--					
			Sage	--	1,679	289	--	--	--	1,800	168	--	--					
			Conifer	--	--	--	--	96	--	--	--	--	96					
RR	Roe Ranch	0727	Grass	1,932	2,116	1,789	--	--	2,097	2,649	1,091	--	--	--	1,222	5,882	1,030	8,134
			Sage	331	417	248	--	--	331	514	151	--	--					
			Mtn. shrub	--	--	--	--	273	--	--	--	--	273					
			Conifer	--	--	--	--	1,028	--	--	--	--	1,028					
RR	Jones-Peet	0730	Grass	--	341	5	--	--	26	318	2	--	--	--	--	1,446	3,336	4,782
			Sage	544	514	--	--	--	544	514	--	--	--					
			Waste	--	--	--	--	3,378	--	--	--	--	3,378					
RR	Forsythe	0735	Grass	--	545	1,327	--	--	46	1,056	770	--	--	--	--	4,111	--	4,111
			Meadow	--	--	185	72	--	--	104	121	32	--					
			Sage	--	1,108	4	870	--	--	1,110	489	383	--					

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing.

				Range Condition (in acres)										Current Trend (in acres)				
				Current					Projected for Year 2010 (proposed action)									
Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Excellent	Good	Fair	Poor	Not Identi- fied	Excellent	Good	Fair	Poor	Not Identi- fied	Up	Static	Down	Undeter- mined	Total Acreage by Allotment
RR	Cocanougher	0738	Meadow	--	--	44	10	--	--	25	25	4	--	--	--	235	--	235
			Sage	--	181	--	--	--	--	181	--	--	--					
RR	East Clover Creek	0740	Meadow	--	254	35	--	--	142	132	15	--	--	800	--	1,919	53	2,772
			Sage	--	2,428	55	--	--	--	2,451	32	--	--					
RR	Indian Creek	0741	Grass	252	878	269	--	--	323	916	160	--	--	123	1,091	1,835	--	3,049
			Meadow	--	50	94	--	--	27	74	43	--	--					
			Sage	--	776	536	--	--	--	993	319	--	--					
			Conifer	--	--	194	--	--	--	--	194	--	--					
RR	Taylor Creek	0745	Grass	77	63	--	43	--	82	58	5	38	--	--	--	1,363	--	1,363
			Sage	--	245	882	--	--	--	609	518	--	--					
			Conifer	--	--	--	--	53	--	--	--	--	53					
RR	Briggs-Medicine Lodge	0748	Grass	--	152	1,216	--	--	12	632	724	--	--	234	2,750	6,372	1,290	10,646
			Sage	--	3,961	3,555	--	--	--	5,401	2,115	--	--					
			Mtn. shrub	--	--	257	--	--	--	--	257	--	--					
			Conifer	236	32	745	306	--	236	32	745	306	--					
			Waste	--	--	--	--	186	--	--	--	--	186					
RR	Bannock Pass	0753	Grass	--	--	68	--	--	--	29	39	--	--	--	--	476	--	476
			Sage	196	--	212	--	--	196	89	123	--	--					
RR	Dad Creek	0758	Grass	--	55	--	--	--	3	52	--	--	--	--	443	218	--	661
			Sage	--	32	369	--	--	--	140	261	--	--					
			Conifer	--	--	--	--	205	--	--	--	--	205					
	Subtotal, Proposed AMPs with RR Grazing System			29,020	96,670	97,337	7,400	30,538	35,074	128,527	62,108	4,718	30,538	7,190	114,292	106,398	33,085	260,965
Existing AMPs with DR Grazing System																		
DR	Conover	0116	Grass	94	223	169	--	--	174	204	108	--	--	--	995	--	3,040	4,035
			Sage	320	69	--	--	--	320	69	--	--	--					
			Waste	--	--	--	--	3,160	--	--	--	--	3,160					
	Subtotal, Existing AMPs with DR Grazing System			414	292	169	--	3,160	494	273	108	--	3,160	--	995	--	3,040	4,035
Revised AMPs with DR Grazing System																		
DR	Junction Seeding	0009	Grass	--	--	37	35	--	--	16	25	31	--	--	218	689	--	907
			Meadow	--	22	--	--	--	12	10	--	--	--					
			Sage	414	399	--	--	--	414	399	--	--	--					
DR	Scudder Creek	0028	Grass	600	--	--	--	--	600	--	--	--	--	--	653	--	--	653
			Sage	--	--	53	--	--	--	15	38	--	--					
	Subtotal, Revised AMPs with DR Grazing System			1,014	421	90	35	--	1,026	440	63	31	--	--	871	689	--	1,560

Proposed AMPs with DR Grazing System

DR	Porcupine Canyon	0107	Grass	427	14	--	--	--	428	13	--	--	--	--	764	1,344	--	2,108
			Meadow	--	115	55	--	--	41	94	35	--	--					
			Sage	--	1,169	328	--	--	--	1,258	239	--	--					
DR	Weldon Buhler	0109	Grass	--	--	170	--	--	--	48	122	--	--	320	--	--	--	320
			Sage	--	150	--	--	--	--	150	--	--	--					
DR,AR	Antelope Butte	0118	Grass	--	223	--	--	--	8	215	--	--	--	--	--	637	349	986
			Sage	--	763	--	--	--	--	763	--	--	--					
DR	Lemhi Pass	0145	Sage	--	373	--	--	--	--	373	--	--	--	--	2,307	--	--	2,307
			Conifer	427	--	--	--	--	427	--	--	--	--					
			Waste	--	--	--	--	1,507	--	--	--	--	1,507					
DR	Matdor-Blacktail	0147	Grass	20	1,796	158	--	--	117	1,742	115	--	--	--	4,291	112	4,053	8,456
			Sage	306	2,002	--	--	--	306	2,002	--	--	--					
			Mtn. shrub	85	--	--	--	--	85	--	--	--	--					
			Conifer	--	--	--	--	3,613	--	--	--	--	3,613					
			Waste	--	--	--	--	476	--	--	--	--	476					
DR	Radio-TV Tower	0150	Grass	1,573	--	--	--	--	1,573	--	--	--	--	--	1,571	--	261	1,832
			Conifer	--	97	--	--	--	--	97	--	--	--					
			Waste	--	--	--	--	162	--	--	--	--	162					
DR	Long Creek	0152	Grass	--	575	612	--	30	32	715	440	--	30	--	--	9,085	11,349	20,434
			Meadow	--	101	818	--	5	37	101	781	--	5					
			Sage	--	6,067	1,022	--	314	--	6,354	735	--	314					
			Conifer	--	--	--	--	10,607	--	--	--	--	10,607					
			Waste	--	--	--	--	283	--	--	--	--	283					
DR,RR	Maiden Creek	0156	Grass	--	40	--	--	--	2	38	--	--	--	--	--	670	--	670
			Meadow	--	--	--	60	--	--	--	20	40	--					
			Sage	--	157	413	--	--	--	262	308	--	--					
DR	Burns Mountain	0160	Grass	112	161	--	--	--	121	152	--	--	--	--	--	1,129	--	1,129
			Sage	--	64	792	--	--	--	278	578	--	--					
DR	Coyote Creek	0165	Grass	--	463	--	--	--	26	437	--	--	--	--	--	956	--	956
			Sage	--	352	141	--	--	--	392	101	--	--					
DR	Henneberry Ridge	0171	Grass	--	109	--	--	--	5	104	--	--	--	--	--	1,290	--	1,290
			Sage	--	899	282	--	--	--	965	216	--	--					
DR	Ruby Dell	0172	Grass	--	286	192	--	--	16	325	137	--	--	--	--	3,774	416	4,190
			Meadow	--	--	90	--	--	--	34	56	--	--					
			Sage	104	3,435	--	--	--	104	3,435	--	--	--					
			Conifer	--	--	83	--	--	--	--	83	--	--					
DR	Gallagher Creek	0173	Sage	--	700	--	--	--	--	700	--	--	--	--	758	--	--	758
			Conifer	--	58	--	--	--	--	58	--	--	--					
DR	Kennison Spring	0182	Grass	--	821	--	--	--	42	779	--	--	--	--	1,530	--	--	1,530
			Sage	9	563	--	--	--	9	563	--	--	--					
			Conifer	--	--	--	--	137	--	--	--	--	137					
DR	Shoshone Cove	0192	Grass	--	505	785	--	--	25	661	604	--	--	--	--	1,716	155	1,871
			Sage	--	170	411	--	--	--	265	316	--	--					
DR,D	William Bell Canyon	0193	Grass	1,159	3,255	1,119	--	--	1,325	3,374	834	--	--	900	2,812	2,840	1,389	7,941
			Sage	--	290	533	--	--	--	426	397	--	--					
			Mtn. shrub	213	--	--	--	--	213	--	--	--	--					
			Conifer	--	1,372	--	--	--	--	1,372	--	--	--					

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing.

				Range Condition (in acres)										Current Trend (in acres)				
				Current					Projected for Year 2010 (proposed action)									
Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Excellent	Good	Fair	Poor	Not Identi- fied	Excellent	Good	Fair	Poor	Not Identi- fied	Up	Static	Down	Undeter- mined	Total Acreage by Allotment
DR	Preacher Creek	0404	Meadow	--	55	3	--	--	21	35	2	--	--	--	359	--	385	744
			Sage	--	114	88	--	--	--	139	63	--	--					
			Conifer	--	--	--	205	--	--	--	--	205	--					
			Waste	--	--	--	--	279	--	--	--	--	279					
DR	Strawberry Ridge	0421	Meadow	--	71	--	--	--	27	44	--	--	--	--	1,060	148	699	1,907
			Sage	--	672	377	--	--	--	779	270	--	--					
			Conifer	--	--	100	--	687	--	--	100	--	687					
DR	Ballard	0456	Meadow	--	29	--	--	--	11	18	--	--	--	--	887	--	--	887
			Sage	--	206	186	--	--	22	239	131	--	--					
			Conifer	--	136	--	--	--	--	136	--	--	--					
			Waste	--	--	--	--	330	--	--	--	--	330					
DR	Garden Creek	0479	Grass	15	2,302	4	--	--	143	2,174	4	--	--	--	1,401	6,245	2,523	10,169
			Sage	--	1,064	3,533	--	--	--	2,151	2,446	--	--					
			Mtn. shrub	--	111	56	--	--	--	111	56	--	--					
			Conifer	--	92	14	--	2,381	--	92	14	--	2,381					
			Waste	--	--	--	--	597	--	--	--	--	597					
DR	North Fork	0482	Grass	375	1,342	--	--	--	403	1,314	--	--	--	--	2,417	--	1,127	3,544
			Meadow	--	5	--	--	--	1	4	--	--	--					
			Sage	6	356	238	--	--	6	381	213	--	--					
			Mtn. shrub	47	--	9	--	39	47	--	9	--	39					
			Conifer	--	--	--	--	1,032	--	--	--	--	1,032					
			Waste	--	--	--	--	95	--	--	--	--	95					
DR,RR	Axolotl Lakes	0485	Grass	58	2,112	--	--	--	166	2,004	--	--	--	--	3,278	--	3,822	7,100
			Meadow	--	286	160	--	--	97	349	--	--	--					
			Sage	--	541	--	--	--	--	541	--	--	--					
			Conifer	--	--	1,179	--	--	--	--	1,179	--	--					
			Waste	--	--	--	--	2,764	--	--	--	--	2,764					
DR	Rock Creek	0512	Grass	94	4,196	525	--	--	327	4,109	379	--	--	--	--	5,090	--	5,090
			Sage	--	--	275	--	--	--	76	199	--	--					
DR	Spring Brook	0516	Grass	596	3,011	495	--	--	759	2,981	362	--	--	--	4,619	--	1,692	6,311
			Sage	--	103	1,927	16	--	--	623	1,413	10	--					
			Mtn. shrub	--	53	--	--	--	--	53	--	--	--					
			Waste	--	--	70	--	40	--	--	70	--	40					
DR	Whitworth	0720	Grass	107	40	--	--	--	109	38	--	--	--	--	1,078	200	24	1,302
			Sage	--	1,040	--	--	--	--	1,040	--	--	--					
			Mtn. shrub	6	--	--	--	--	6	--	--	--	--					
			Conifer	--	--	--	--	109	--	--	--	--	109					
DR	Sand Dunes	0732	Sage	--	525	154	--	--	--	568	111	--	--	39	--	--	640	679
DR	Snowcrest Ranch	0734	Grass	--	154	--	--	--	9	145	--	--	--	1,190	--	--	261	1,451
			Sage	729	--	--	--	--	729	--	--	--	--					
			Conifer	--	--	--	--	568	--	--	--	--	568					
Subtotal, Proposed AMPs with DR Grazing System				6,468	45,761	17,397	281	26,055	7,825	48,689	13,138	255	26,055	2,449	29,132	35,236	29,145	95,962

Proposed AMPs with D Grazing System

D	Twin Lakes	0104	Grass	--	--	--	--	25	--	--	--	--	25	--	1,049	--	--	1,049
			Sage	--	--	283	--	104	--	53	230	--	104					
			Conifer	20	--	--	--	617	20	--	--	--	617					
D	Frenchie-Carroll-Holland	0120	Grass	--	591	--	534	--	17	574	20	514	--	--	6,279	--	--	6,279
			Meadow	--	--	--	82	--	--	--	16	66	--					
			Sage	--	4,756	218	98	--	--	4,787	206	79	--					
D,RR	Lima Reservoir	0151	Grass	--	2,064	1,009	465	--	56	2,144	890	448	--	4,592	--	1,571	--	6,163
			Meadow	--	1,001	438	--	--	180	900	359	--	--					
			Sage	--	167	1,019	--	--	--	305	881	--	--					
D	Buzztail	0161	Grass	--	492	--	--	--	11	481	--	--	--	--	548	--	--	548
			Sage	--	56	--	--	--	--	56	--	--	--					
D	Timber Butte	0168	Grass	447	70	--	--	--	449	68	--	--	--	--	--	3,660	--	3,660
			Sage	259	2,868	--	--	--	259	2,868	--	--	--					
			Conifer	--	--	--	--	16	--	--	--	--	16					
D	Saier Ind.	0169	Sage	--	320	--	--	--	--	320	--	--	--	--	320	--	--	320
D	Nelson	0313	Grass	--	305	--	--	--	9	296	--	--	--	505	--	--	--	505
			Sage	--	190	--	--	--	--	190	--	--	--					
			Waste	--	--	--	--	10	--	--	--	--	10					
D	Gneiting	0319	Grass	--	200	--	--	--	6	194	--	--	--	--	280	815	--	1,095
			Sage	150	355	340	--	--	150	403	292	--	--					
			Mtn. shrub	50	--	--	--	--	50	--	--	--	--					
D	Logan Smith	0345	Grass	--	938	735	--	--	24	1,008	641	--	--	--	1,839	--	--	1,839
			Sage	--	--	130	--	--	--	19	111	--	--					
			Mtn. shrub	--	36	--	--	--	--	36	--	--	--					
D	Windy Pass	0385	Sage	--	233	--	--	--	--	233	--	--	--	--	382	--	451	833
			Conifer	--	--	192	--	--	--	--	192	--	--					
			Waste	--	--	--	--	408	--	--	--	--	408					
D,RR	Revenue Common	0407	Meadow	--	52	--	--	--	10	42	--	--	--	--	1,912	241	126	2,279
			Sage	--	184	987	--	360	--	325	846	--	360					
			Mtn. shrub	--	--	--	--	5	--	--	--	--	5					
			Conifer	--	--	--	--	403	--	--	--	--	403					
			Waste	--	--	--	--	288	--	--	--	--	288					
D,RR	Fletcher-Moore	0428	Grass	--	12	374	--	--	--	53	333	--	--	--	--	1,680	27	1,707
			Meadow	--	9	--	--	--	1	8	--	--	--					
			Sage	--	--	1,017	--	--	--	114	903	--	--					
			Conifer	--	--	--	265	--	--	--	--	265	--					
			Waste	--	--	--	--	30	--	--	--	--	30					
D	Bryan	0459	Grass	--	11	896	--	--	--	118	789	--	--	--	738	169	--	907
D	Idaho Jack	0499	Grass	--	--	151	--	--	--	20	131	--	--	--	1,785	--	3,014	4,799
			Meadow	--	114	--	--	--	21	93	--	--	--					
			Sage	--	920	72	--	--	--	930	62	--	--					
			Mtn. shrub	--	14	--	--	13	--	14	--	--	13					
			Conifer	--	223	293	518	--	--	223	293	518	--					
			Waste	--	--	--	--	2,481	--	--	--	--	2,481					
D	Wisconsin Creek	0501	Meadow	--	--	77	--	--	--	14	63	--	--	--	--	1,354	--	1,354
			Sage	--	142	701	32	--	--	237	612	26	--					
			Conifer	--	--	107	--	--	--	--	107	--	--					
			Waste	--	--	--	--	295	--	--	--	--	295					

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)										Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected for Year 2010 (proposed action)									
				Excellent	Good	Fair	Poor	Not Identi- fied	Excellent	Good	Fair	Poor	Not Identi- fied	Up	Static	Down	Undeter- mined	
D	Sweetwater Basin	0518	Grass	--	788	--	--	--	20	768	--	--	--	--	--	1,369	--	1,369
			Sage	--	324	257	--	--	--	357	224	--	--					
D	Virginia City Hill	0521	Grass	--	189	71	--	--	5	194	61	--	--	--	2,009	527	54	2,590
			Sage	--	505	1,825	--	--	--	773	1,557	--	--					
D	Wheat	0706	Sage	--	412	--	--	--	--	412	--	--	--	--	--	401	11	412
D	Staudenmeyer	0710	Grass	274	128	--	--	--	278	124	--	--	--	--	--	2,943	--	2,943
			Sage	--	2,175	366	--	--	--	2,227	314	--	--					
D	Small Horn Canyon	0722	Grass	149	302	--	--	--	157	294	--	--	--	--	451	--	--	451
	Subtotal, Proposed AMPs with D Grazing System			1,349	21,146	11,558	1,994	5,055	1,723	22,275	10,133	1,916	5,055	5,097	17,592	14,730	3,683	41,102
Existing AMPs with AR Grazing System																		
AR	Bannack	0015	Grass	--	1,221	--	--	--	5	1,216	--	--	--	--	10,741	--	--	10,741
			Sage	71	4,836	1,772	--	--	71	4,876	1,732	--	--					
			Mtn. shrub	610	--	--	--	--	610	--	--	--	--					
			Conifer	--	198	341	--	816	--	198	341	--	816					
			Waste	--	--	876	--	--	--	--	876	--	--					
AR	Coyote Flats	0017	Meadow	--	158	--	--	--	84	74	--	--	--	--	--	3,787	--	3,787
			Sage	246	3,383	--	--	--	246	3,383	--	--	--					
AR	Robb Creek	0167	Grass	--	527	287	--	--	37	591	186	--	--	1,382	1,382	--	3,275	6,039
			Meadow	--	8	--	--	--	--	8	--	--	--					
			Sage	133	1,248	469	--	92	133	1,259	458	--	92					
			Conifer	317	564	1,293	--	1,101	317	564	1,293	--	1,101					
AR,DR	Iron Rod	0268	Grass	--	--	1,813	--	--	--	41	1,772	--	--	--	5,682	--	--	5,682
			Sage	--	2,686	--	--	--	--	2,686	--	--	--					
			Mtn. shrub	--	1,183	--	--	--	--	1,183	--	--	--					
AR	Greenstone	0317	Grass	--	--	56	--	--	--	8	48	--	--	--	2,862	--	--	2,862
			Sage	--	1,659	970	--	--	--	1,797	832	--	--					
			Mtn. shrub	--	--	177	--	--	--	--	177	--	--					
AR	Jerry Creek	0318	Grass	--	117	--	163	--	1	116	1	162	--	--	10,479	--	--	10,479
			Sage	925	3,293	1,323	596	--	925	3,333	1,301	578	--					
			Conifer	189	1,026	1,109	1,706	--	189	1,026	1,109	1,706	--					
			Waste	--	--	--	32	--	--	--	--	32	--					
	Subtotal, Existing AMPs with AR Grazing System			2,491	22,107	10,486	2,497	2,009	2,618	22,359	10,126	2,478	2,009	1,382	31,146	3,787	3,275	39,590

Revised AMPs with AR Grazing System

AR	Chinatown	0016	Grass	772	218	356	--	--	790	350	206	--	--	--	--	4,716	174	4,890
			Meadow	--	--	--	2	--	--	--	1	1	--					
			Sage	571	1,262	1,613	--	--	571	1,940	935	--	--					
			Waste	--	--	--	--	96	--	--	--	--	96					
AR	Trail Creek	0025	Sage	--	353	--	--	--	--	353	--	--	--	--	--	320	33	353
AR	Rock Creek	0041	Grass	--	353	--	--	--	29	324	--	--	--	505	--	--	--	505
			Meadow	--	20	--	--	--	11	9	--	--	--					
			Sage	--	132	--	--	--	--	132	--	--	--					
Subtotal, Revised AMPs with AR Grazing System				1,343	2,338	1,969	2	96	1,401	3,108	1,142	1	96	505	--	5,036	207	5,748

Proposed AMPs with AR Grazing System

AR,RR,D	Big Hole Road	0135	Grass	--	1,332	--	134	--	6	1,326	1	133	--	--	1,564	--	--	1,564
			Sage	--	--	98	--	--	--	2	96	--	--					
AR	Rocky Hills	0148	Grass	582	1,765	193	--	--	593	1,760	187	--	--	--	--	16,931	--	16,931
			Sage	546	8,828	3,893	--	--	546	8,945	3,776	--	--					
			Conifer	--	130	111	--	803	--	130	111	--	803					
			Waste	--	--	--	--	80	--	--	--	--	80					
AR,D	Shineberger	0159	Grass	--	217	--	--	--	1	216	--	--	--	1,032	--	--	--	1,032
			Meadow	--	--	81	--	--	--	3	78	--	--					
			Sage	--	557	177	--	--	--	562	172	--	--					
AR	Dry Boulder	0236	Sage	--	26	57	--	--	--	27	56	--	--	--	205	--	313	518
			Mtn. shrub	--	32	--	--	--	--	32	--	--	--					
			Conifer	--	--	90	--	--	--	--	90	--	--					
			Waste	--	--	--	--	313	--	--	--	--	313					
AR	Lost Creek	0322	Grass	--	--	190	--	--	--	4	186	--	--	--	--	670	--	670
			Sage	--	300	150	30	--	--	303	148	29	--					
AR	Devils Dancehall	0327	Grass	--	--	1,201	--	--	--	297	904	--	--	--	2,350	--	1,082	3,432
			Mtn. shrub	--	824	--	--	--	--	824	--	--	--					
			Conifer	--	--	--	--	1,407	--	--	--	--	1,407					
AR	Quartz Hill	0343	Grass	113	--	--	--	--	113	--	--	--	--	--	441	--	583	1,024
			Sage	--	328	--	--	--	2	326	--	--	--					
			Conifer	--	--	--	--	451	--	--	--	--	451					
			Waste	--	--	--	--	132	--	--	--	--	132					
AR,D	Alder Creek	0351	Sage	--	216	130	--	--	--	216	130	--	--	--	2,164	--	--	2,164
			Conifer	--	--	--	--	1,818	--	--	--	--	1,818					
AR,D	Mill Gulch	0475	Sage	--	--	290	--	--	--	7	283	--	--	--	--	667	--	667
			Conifer	--	--	179	--	198	--	--	179	--	198					
AR	Brandon Pasture	0481	Meadow	--	--	20	--	--	--	1	19	--	--	--	341	401	--	742
			Sage	--	63	659	--	--	2	74	646	--	--					
AR	Hogback	0486	Grass	--	--	871	--	--	--	229	642	--	--	871	--	--	--	871
AR	Rattlesnake	0510	Grass	--	105	448	477	21	1	114	441	474	21	--	1,051	--	304	1,355
			Sage	--	--	192	--	--	--	4	188	--	--					
			Mtn. shrub	--	45	--	--	--	--	45	--	--	--					
			Waste	--	--	--	--	67	--	--	--	--	67					

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing.

				Range Condition (in acres)										Current Trend (in acres)				
				Current					Projected for Year 2010 (proposed action)									
Status/ Grazing System*	Allotment Name	Allotment Number	Vegetative Type	Excellent	Good	Fair	Poor	Not Identified	Excellent	Good	Fair	Poor	Not Identified	Up	Static	Down	Undetermined	Total Acreage by Allotment
AR,D	Wall Creek	0522	Grass	--	662	36	--	--	7	656	35	--	--	--	790	20	--	810
			Meadow	--	12	40	60	--	--	13	41	58	--					
AR,D	Middle Fork	0525	Meadow	--	30	--	--	--	1	29	--	--	--	--	2,174	--	--	2,174
			Sage	--	2,064	80	--	--	--	2,066	78	--	--					
AR,D,DR	McHessor Creek	0530	Grass	--	548	--	--	--	2	546	--	--	--	--	1,411	--	3,453	4,864
			Meadow	--	49	--	--	--	1	48	--	--	--					
			Sage	--	73	439	--	--	--	83	429	--	--					
			Mtn. shrub	22	--	--	--	--	22	--	--	--	--					
			Conifer	--	--	--	--	2,995	--	--	--	--	2,995					
			Waste	--	--	--	--	738	--	--	--	--	738					
Subtotal, Proposed AMPs with AR Grazing System				1,263	18,206	9,625	701	9,023	1,297	18,888	8,916	694	9,023	1,903	12,491	18,689	5,735	38,818
Proposed AMPs with SDHI Grazing System																		
SDHI	Lower Rochester Basin	0353	Grass	--	--	622	116	--	--	168	462	108	--	--	1,333	--	--	1,333
			Sage	--	--	265	--	--	--	72	193	--	--					
			Mtn. shrub	--	280	--	50	--	--	280	--	50	--					
Subtotal, Proposed AMPs with SDHI Grazing System				--	280	887	166	--	--	520	655	158	--	--	1,333	--	--	1,333
Non-AMPs																		
S	Hildreth	0103	Grass	140	--	--	--	--						--	620	--	--	620
			Sage	150	330	--	--	--										
S	Anderson	0105	Grass	57	457	96	--	--	No attempt has been made to project range condition for the non-AMP allotments.					--	632	505	449	1,586
			Sage	--	365	122	41	--										
			Mtn. shrub	--	--	--	--	448										
S	Bar OK	0106	Grass	20	--	--	--	--						--	--	--	201	201
			Meadow	--	15	--	--	--										
			Sage	--	41	85	--	--										
			Conifer	--	--	--	--	40										
S	Selway	0111	Sage	--	113	--	--	--						--	155	--	--	155
			Conifer	--	--	--	--	42										
S	Bjorni	0112	Grass	10	--	--	--	--						--	--	70	--	70
			Sage	20	--	40	--	--										
S	Lost Custodial	0115	Grass	--	80	--	--	--						--	--	--	242	242
			Meadow	--	--	42	--	--										
			Sage	--	42	78	--	--										

S	Huntsman	0125	Grass	--	--	--	87	--		--	160	--	--	160
			Meadow	--	--	--	27	--						
			Sage	--	--	40	--	--						
			Waste	--	--	--	--	6						
S	Hildreth Livestock	0127	Grass	--	--	2	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	286	6	--	292
			Meadow	--	22	--	--	--						
			Sage	--	268	--	--	--						
S	G and L Ranches	0128	Grass	--	43	--	--	--		--	--	--	43	43
S	Erb	0132	Grass	--	10	265	--	--		--	1,910	--	--	1,910
			Meadow	--	--	--	20	--						
			Sage	70	330	95	--	--						
			Conifer	--	--	--	--	1,120						
S	Hayden	0134	Grass	--	140	20	--	--		--	120	--	40	160
S	K-6	0139	Grass	--	20	--	--	--		--	120	--	--	120
			Conifer	--	--	--	--	100						
S	Arlo Jones	0140	Grass	--	--	400	--	--		--	400	--	--	400
S	Johnson Bros.	0141	Meadow	--	160	--	--	--		--	--	--	160	160
S	Hirschey	0142	Grass	--	--	59	--	--		--	--	--	244	244
			Meadow	--	--	72	--	--						
			Conifer	--	--	--	--	113						
S	Magpie Trail Gulch	0144	Sage	--	520	--	--	--		--	--	520	--	520
S	Matador S.G.C.	0153	Grass	--	40	60	--	--		--	--	380	15	395
			Meadow	--	--	55	180	--						
			Sage	--	--	60	--	--						
S	L Diamond	0155	Grass	--	20	--	--	--		--	720	200	--	920
			Meadow	--	--	--	50	--						
			Sage	--	427	328	95	--						
S	Long Creek	0157	Grass	--	28	--	--	--		--	--	130	--	130
			Meadow	--	--	22	--	--						
			Sage	--	80	--	--	--						
S	Munday Ind.	0162	Sage	--	--	320	--	--		--	--	320	--	320
S	Morton	0163	Sage	--	--	65	--	--		--	40	--	120	160
			Conifer	--	--	--	--	95						
S	Martinell	0164	Sage	120	25	--	--	--		65	--	--	95	160
			Conifer	--	--	--	--	15						
S	Esterwald	0166	Meadow	--	--	--	--	10		--	--	15	--	15
			Sage	--	5	--	--	--						

* RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short duration, high intensity grazing; S = seasonal.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)						Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected					
				Excellent	Good	Fair	Poor	Not Identi- fied		Up	Static	Down	Undeter- mined	
S	Rebich and Sons	0170	Grass	61	36	--	--	--		--	224	30	497	751
			Sage	--	100	--	--	43						
			Conifer	--	--	--	--	503						
			Waste	--	--	--	--	8						
S	Rebich	0174	Sage	--	335	--	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	335	--	--	335
S	Railroad	0175	Grass	--	920	--	--	--		920	--	--	--	920
S	E. Munday	0176	Grass	--	--	80	--	--		--	476	--	--	476
			Meadow	--	--	--	77	--						
			Sage	--	--	319	--	--						
S	Mooney	0178	Grass	--	71	503	--	--		--	651	--	463	1,114
			Sage	77	--	--	--	--						
			Conifer	--	--	--	--	248						
			Waste	--	215	--	--	--						
S	Duffner	0180	Sage	--	40	--	--	--		--	--	--	40	40
S	Passmore	0183	Grass	--	--	75	--	--		--	80	--	--	80
			Meadow	--	--	--	5	--						
S	Meine Land and Livestock	0184	Grass	--	204	232	--	--		--	--	--	1,145	1,145
			Sage	42	77	--	--	--						
			Conifer	--	--	--	--	563						
			Waste	--	--	--	--	27						
S	McCandless	0185	Grass	170	--	--	--	--		200	686	--	104	990
			Sage	--	437	258	--	--						
			Conifer	--	--	--	--	125						
S	Seybold	0187	Grass	--	387	--	--	--		--	900	--	140	1,040
			Sage	--	513	--	--	--						
			Mtn. shrub	87	--	--	--	--						
			Conifer	--	--	--	--	53						
S	Selkirk	0188	Grass	257	554	--	--	--		--	299	440	311	1,050
			Sage	--	38	--	--	--						
			Conifer	--	--	--	--	60						
			Waste	--	--	--	--	141						
S	Schonenberger	0189	Sage	--	--	87	--	--		--	--	--	160	160
			Conifer	--	--	--	--	73						

S	Rutledge Ranches	0190	Grass	--	17	182	--	--	--	--	--	360	360
			Sage	--	--	161	--	--					
S	Farley Polaris	0191	Grass	80	80	--	--	--	--	80	1,710	--	1,790
			Sage	--	500	315	--	--					
			Conifer	--	--	--	--	815					
S	Brown's Canyon	0194	Sage	120	--	--	--	--	--	--	120	--	120
S	Rutledge-Doolittle	0196	Meadow	20	--	--	--	--	--	--	--	40	40
			Sage	--	--	16	--	--					
			Waste	--	--	--	--	4					
S	Third Creek	0237	Sage	--	160	--	--	--	--	--	160	691	851
			Conifer	--	--	--	--	691					
S	Chalk Bluff	0300	Grass	--	148	74	--	--	--	--	871	367	1,238
			Meadow	--	4	--	--	--					
			Sage	--	112	533	--	--					
			Conifer	--	--	--	--	367					
S	Willow Creek	0304	Grass	--	--	--	190	--	--	--	169	21	190
S	Waterloo	0306	Grass	--	58	641	--	--	--	589	376	517	1,482
			Meadow	--	--	--	26	--					
			Sage	--	45	44	--	--					
			Mtn. shrub	--	--	--	--	151					
			Conifer	--	--	--	--	492					
			Waste	--	--	--	--	25					
S	Carpenter	0307	Sage	--	--	80	--	--	--	80	--	--	80
S	Childs Ind.	0310	Grass	--	--	144	70	--	--	161	144	--	305
			Meadow	--	--	--	51	--					
			Sage	--	--	40	--	--					
S	Lott	0331	Grass	--	64	27	--	--	--	320	--	70	390
			Sage	--	133	96	--	--					
			Conifer	--	70	--	--	--					
S	Mt. Haggin	0334	Grass	20	220	98	197	--	--	791	--	250	1,041
			Meadow	--	216	--	--	--					
			Sage	39	--	--	--	--					
			Conifer	--	--	--	251	--					
S	Peck Ind.	0336	Sage	--	81	--	--	--	--	81	--	--	81
S	Pendergast	0338	Grass	--	160	--	--	--	--	120	--	40	160
S	Deep Creek	0339	Grass	--	--	--	--	65	105	1,017	--	1,034	2,156
			Meadow	32	122	--	--	--					
			Sage	--	425	478	--	--					
			Conifer	--	--	--	--	1,034					

* S = seasonal.

				Range Condition (in acres)						Current Trend (in acres)				
				Current					Projected					
Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Excellent	Good	Fair	Poor	Not Identi- fied		Up	Static	Down	Undeter- mined	Total Acreage by Allotment
S	Leffler Creek	0340	Grass	19	--	--	--	--		--	373	--	552	925
			Sage	22	--	381	--	--						
			Conifer	--	307	--	--	196						
S	Smith Ind.	0346	Sage	--	--	160	62	--		--	222	--	18	240
			Waste	--	--	--	--	18						
S	White Rock	0349	Grass	--	95	194	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	522	--	148	670
			Mtn. shrub	--	--	--	--	211						
			Conifer	--	--	--	--	170						
S	Kearns Ind.	0350	Grass	--	--	160	--	--		--	142	--	18	160
S	Harriet Lou Cr.	0352	Sage	--	73	--	--	--		--	90	--	--	90
			Conifer	--	--	--	--	17						
S	McCullough Ind.	0355	Grass	--	--	588	--	--		39	594	--	--	633
			Sage	--	45	--	--	--						
S	Individual A and B	0370	Meadow	--	--	--	--	8		--	1,112	--	672	1,784
			Sage	--	--	--	--	267						
			Mtn. shrub	--	--	--	--	281						
			Conifer	--	--	--	--	1,228						
S	Fish Creek S.G.C.	0371	Sage	--	--	--	--	96		--	--	96	--	96
S	Armstrong	0378	Grass	48	--	--	--	--		--	48	--	112	160
			Conifer	--	--	--	--	112						
S	Ballard	0379	Meadow	--	--	16	--	--		--	16	--	79	95
			Mtn. shrub	--	47	--	--	--						
			Waste	--	--	--	--	32						
S	Bausch	0380	Sage	--	553	--	--	--		--	553	--	--	553
S	Carter	0386	Grass	--	61	--	--	--		61	--	--	65	126
			Waste	--	65	--	--	--						
S	Dehaan	0390	Mtn. shrub	--	--	--	--	87		--	87	--	--	87
S	Easter	0393	Grass	--	46	317	--	--		683	199	--	246	1,128
			Meadow	6	--	--	--	--						
			Sage	--	35	456	--	--						
			Mtn. shrub	--	--	23	--	24						
			Waste	--	--	--	--	221						

S	Elmer	0394	Grass	--	217	3	--	--	--	228	--	--	228
			Meadow	8	--	--	--	--					
S	Biltmore	0395	Grass	--	--	348	--	--	--	--	348	--	348
S	Frisbee-McGee	0399	Sage	--	--	461	--	--	--	408	--	974	1,382
			Conifer	--	--	--	--	921					
S	Goggins Hereford	0400	Grass	20	4	--	57	--	--	81	--	88	169
			Conifer	--	--	--	--	8					
			Waste	--	--	--	--	80					
S	Lineberger	0401	Sage	--	--	192	--	--	--	--	--	192	192
S	J. Peter Jackson	0405	Grass	--	192	--	--	--	192	--	--	--	192
S	Peter V. Jackson	0406	Grass	47	166	40	--	--	--	455	--	302	757
			Meadow	--	--	--	--	28					
			Sage	--	98	30	--	--					
			Mtn. shrub	--	--	46	--	--					
			Waste	--	--	--	--	302					
S	William T. Jackson	0408	Grass	--	272	--	--	--	--	899	--	--	899
			Sage	--	222	--	--	--					
			Mtn. shrub	405	--	--	--	--					
S	Jourdain	0410	Grass	--	--	14	5	--	--	110	35	5	150
			Meadow	--	--	16	--	--					
			Sage	--	--	110	--	--					
			Waste	--	--	--	--	5					
S	Glenn Kyle	0412	Grass	--	31	28	--	--	--	188	--	--	188
			Sage	--	5	--	--	--					
			Conifer	--	--	--	--	124					
S	Billie Grant Kyle	0413	Grass	--	--	10	--	--	--	125	--	35	160
			Sage	--	--	115	--	--					
			Conifer	--	--	--	--	35					
S	Manion	0415	Sage	--	--	--	--	9	--	9	--	31	40
			Conifer	--	--	--	--	31					
S	Ledyard-McGuire	0416	Grass	--	118	437	--	--	--	27	599	10	636
			Sage	--	81	--	--	--					
S	Michael	0417	Grass	--	400	--	--	--	--	445	--	--	445
			Meadow	19	--	--	--	--					
			Sage	--	--	15	--	--					
			Mtn. shrub	--	--	11	--	--					
S	Miller	0418	Sage	--	--	24	--	--	--	40	--	--	40
			Conifer	--	--	--	--	16					
S	Flying D	0420	Grass	37	181	21	--	--	--	218	21	55	294
			Waste	--	--	--	--	55					

* S = seasonal.

Status/ Grazing System*	Allotment Name	Allotment Number	Vegetative Type	Range Condition (in acres)						Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected					
				Excellent	Good	Fair	Poor	Not Identified		Up	Static	Down	Undetermined	
S	Owens	0422	Grass	--	120	--	--	--		120	--	--	--	120
S	Robison	0429	Grass	--	5	--	--	--		--	476	--	--	476
			Meadow	--	--	3	--	--						
			Sage	--	468	--	--	--						
S	Sacry	0430	Grass	--	67	--	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	115	--	4	119
			Sage	--	--	48	--	--						
			Waste	--	--	--	--	4						
S	Vern Shaw	0432	Grass	--	102	--	--	--		102	--	--	138	240
			Mtn. shrub	--	--	--	--	59						
			Waste	--	--	--	--	79						
S	Shelton	0434	Grass	--	256	8	18	--		--	283	--	157	440
			Mtn. shrub	--	31	11	--	--						
			Waste	--	112	--	--	4						
S	Glenn Shelton	0435	Grass	--	--	30	--	2		--	59	--	101	160
			Meadow	--	--	27	--	--						
			Conifer	--	--	--	--	80						
			Waste	--	--	--	--	21						
S	Shirley	0436	Grass	--	297	--	--	--		--	297	--	349	646
			Waste	--	342	--	--	7						
S	Cliff Lake	0437	Sage	--	--	32	--	--		32	--	--	--	32
S	Sitz	0438	Grass	7	13	--	--	--		--	93	--	16	109
			Meadow	--	5	3	--	--						
			Sage	--	58	7	--	--						
			Waste	--	--	--	--	16						
S	Willow Creek	0440	Grass	--	35	--	--	94		--	517	--	148	665
			Sage	--	98	--	--	--						
			Mtn. shrub	--	--	--	--	289						
			Conifer	--	--	--	--	149						
S	Moran	0444	Grass	--	--	209	--	--		--	209	--	--	209
S	Minnie Creek	0451	Grass	--	132	--	--	--		--	201	--	120	321
			Sage	--	--	69	--	--						
			Conifer	--	--	--	--	120						
S	Armitage	0452	Grass	--	60	159	--	--		--	219	--	--	219

S	Walker Creek	0454	Grass	31	--	--	--	--	--	526	--	273	799
			Meadow	--	9	--	--	--					
			Sage	--	236	259	--	--					
			Conifer	--	--	--	--	264					
S	Butts	0455	Grass	--	--	80	--	--	--	80	--	--	80
S	Bar Seven	0457	Grass	441	251	373	4	--	--	793	956	125	1,874
			Meadow	--	--	4	--	--					
			Sage	--	52	584	--	--					
			Mtn. shrub	--	31	--	--	57					
			Conifer	--	--	--	--	41					
			Waste	--	--	--	--	36					
S	Whitney	0458	Grass	--	--	196	--	--	239	--	--	--	239
			Meadow	--	--	--	3	--					
			Sage	--	--	40	--	--					
S	Sun Ranch	0460	Grass	--	270	--	--	--	--	1,106	--	223	1,329
			Meadow	--	30	--	--	14					
			Sage	--	428	--	--	39					
			Mtn. shrub	--	--	--	--	163					
			Conifer	--	--	--	--	268					
			Waste	--	--	--	--	117					
S	CB Ranch	0461	Grass	40	40	--	--	--	--	400	--	--	400
			Sage	--	--	320	--	--					
S	Squaw Creek	0462	Grass	--	--	26	--	--	--	811	--	311	1,122
			Sage	--	407	378	--	--					
			Conifer	--	--	--	--	311					
S	Laurin Canyon	0463	Grass	--	--	680	--	--	--	--	785	292	1,077
			Sage	--	27	105	--	--					
			Conifer	--	--	--	--	143					
			Waste	--	--	--	--	122					
S	Cocanougher	0464	Grass	--	--	1	--	--	--	33	111	--	144
			Meadow	--	--	32	--	--					
			Sage	--	--	--	111	--					
S	Mill Creek-Gustin	0465	Grass	--	160	262	30	--	--	160	292	28	480
			Waste	--	--	--	--	28					
S	Nyhart	0470	Grass	--	39	31	--	--	--	470	305	--	775
			Meadow	--	13	--	--	--					
			Sage	--	57	635	--	--					
S	Daems	0472	Grass	--	--	77	--	--	--	77	--	--	77
S	Blue Lake	0473	Grass	--	44	--	--	--	--	44	--	36	80
			Conifer	--	--	--	--	36					
S	Durham	0474	Grass	--	184	--	--	--	--	--	188	12	200
			Mtn. shrub	--	--	--	--	16					

* S = seasonal.

				Range Condition (in acres)						Current Trend (in acres)				
				Current					Projected					
Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Excellent	Good	Fair	Poor	Not Identi- fied		Up	Static	Down	Undeter- mined	Total Acreage by Allotment
S	Elkhorn	0476	Grass	--	124	--	--	--		--	124	--	--	124
S	Elser	0477	Sage	--	153	138	--	--		--	--	291	33	324
			Conifer	--	33	--	--	--						
S	Funk	0478	Meadow	--	24	--	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	--	187	45	232
			Sage	--	5	148	--	--						
			Mtn. shrub	--	--	10	--	--						
			Conifer	--	--	--	--	45						
S	Tucker Creek	0480	Grass	--	--	--	40	--		--	--	--	40	40
S	Baker Summit	0487	Grass	--	--	57	--	--		--	--	333	81	414
			Sage	--	--	276	--	--						
			Mtn. shrub	--	--	81	--	--						
S	Black Rock	0491	Grass	--	88	--	--	--		--	1,742	298	542	2,582
			Meadow	--	6	--	--	63						
			Sage	--	--	562	--	74						
			Mtn. shrub	--	--	--	--	76						
			Conifer	--	--	--	--	1,687						
			Waste	--	--	26	--	--						
S	Garnet	0492	Grass	--	--	87	--	--		--	475	--	130	605
			Sage	--	--	219	--	--						
			Waste	--	130	--	--	169						
S	Pierce Canyon	0493	Grass	--	--	612	--	--		--	--	719	100	819
			Meadow	--	--	150	--	--						
			Sage	--	--	57	--	--						
S	Riverlodge	0494	Meadow	--	--	130	--	--		--	--	143	--	143
			Sage	--	--	13	--	--						
S	Bench Allotment	0495	Grass	--	--	200	--	--		--	200	--	--	200
S	Trout Creek	0496	Grass	20	--	--	--	--		--	296	--	24	320
			Meadow	--	51	--	--	--						
			Sage	--	--	177	--	16						
			Conifer	--	--	--	--	52						
			Waste	--	--	--	--	4						
S	Cedar Creek	0500	Grass	--	40	--	--	--		--	40	--	--	40

S	Eclipse	0502	Grass	--	--	26	--	--	--	80	--	--	80
			Sage	--	--	54	--	--					
S	Moorse Creek	0504	Grass	--	141	40	--	--	225	--	--	15	240
			Sage	--	--	44	--	--					
			Waste	--	--	--	--	15					
S	LaMarche Creek	0508	Grass	--	86	--	--	--	--	201	--	119	320
			Meadow	--	--	16	--	--					
			Sage	--	--	99	--	--					
			Conifer	--	--	--	--	119					
S	Herman Gulch	0509	Grass	--	--	70	--	--	--	--	--	70	70
S	Hoffman Creek	0511	Sage	--	29	251	--	--	--	168	112	--	280
S	Big Sheep	0513	Sage	--	7	515	--	--	--	--	522	--	522
S	Hillside	0514	Grass	--	--	192	--	--	--	--	239	--	239
			Sage	--	--	7	--	--					
			Mtn. shrub	--	40	--	--	--					
S	Red Canyon	0517	Grass	--	93	--	--	--	--	596	93	--	689
			Sage	--	--	596	--	--					
S	Riverside	0524	Grass	--	537	115	--	--	--	--	658	--	658
			Meadow	--	6	--	--	--					
S	Spring Canyon	0527	Grass	--	105	--	--	--	--	16	268	246	530
			Sage	--	--	179	--	--					
			Conifer	--	--	--	--	143					
			Waste	--	--	103	--	--					
S	Spear Place	0528	Grass	54	--	--	--	--	--	--	785	262	1,047
			Meadow	--	--	15	--	--					
			Sage	--	192	495	--	--					
			Conifer	--	29	--	--	250					
			Waste	--	--	--	--	12					
S	McAtee Bridge	0529	Grass	--	28	339	--	--	--	397	--	--	397
			Meadow	--	--	30	--	--					
S	Carter Creek	0534	Grass	--	104	--	--	--	51	298	--	432	781
			Sage	--	78	352	--	--					
			Conifer	--	--	--	76	84					
			Waste	--	--	--	--	87					
S	Antelope Gulch	0536	Sage	--	40	--	--	--	--	--	40	--	40
S	Beaverhead Rock	0537	Grass	--	--	120	--	--	--	34	86	--	120
S	Kelly Meridian	0539	Grass	--	--	184	--	--	--	--	184	--	184
S	Aspen Creek	0540	Grass	--	--	97	--	--	--	--	176	506	682
			Meadow	--	--	--	79	--					
			Conifer	--	--	--	--	506					

* S = seasonal.

				Range Condition (in acres)						Current Trend (in acres)				
				Current					Projected					
Status/ Grazing System*	Allotment Name	Allot-ment Number	Vege-tative Type	Excellent	Good	Fair	Poor	Not Identi-fied		Up	Static	Down	Undeter-mined	Total Acreage by Allotment
S	York Gulch	0541	Sage	--	--	125	--	--		--	--	125	--	125
S	Hritsco	0542	Grass	--	--	129	--	--		--	269	--	--	269
			Sage	--	--	140	--	--						
S	Aqueduct	0545	Sage	--	--	--	--	45	No attempt has been made to project range condition for the non-AMP allotments.	--	45	--	--	45
S	Valley Garden	0547	Grass	--	--	145	--	--		--	140	112	--	252
			Sage	--	27	--	--	--						
			Mtn. shrub	--	80	--	--	--						
S	Madison Valley Holding Pasture	0550	Grass	--	--	260	23	--		24	--	355	--	379
			Waste	--	--	--	--	96						
S	Garden	0601	Grass	12	219	131	--	--		--	655	--	492	1,147
			Sage	--	59	140	--	19						
			Mtn. shrub	--	31	--	--	31						
			Conifer	--	--	--	--	470						
			Waste	--	13	--	--	22						
S	Hildreth 1A	0602	Sage	--	190	--	--	--		100	90	--	10	200
			Conifer	--	--	10	--	--						
S	Kingfisher	0603	Grass	--	40	--	--	--		--	364	--	153	517
			Meadow	--	12	--	--	--						
			Sage	--	312	--	--	--						
			Conifer	--	--	--	--	153						
S	Little Spring Gulch	0604	Grass	419	776	--	--	--		1,378	--	138	--	1,516
			Meadow	--	15	--	--	--						
			Sage	180	--	126	--	--						
S	Lovell's Lake	0605	Grass	12	--	4	--	--		--	142	--	--	142
			Sage	126	--	--	--	--						
S	Leadore	0606	Sage	--	--	25	--	--		--	25	--	--	25
S	Snowline AMP Custodial	0607	Grass	140	817	122	--	--		1,510	--	--	--	1,510
			Meadow	--	--	157	--	--						
			Sage	--	250	--	--	--						
			Mtn. shrub	--	24	--	--	--						
S	P.H.W.	0608	Sage	--	--	80	--	--		--	--	80	--	80
S	Red Mine	0609	Grass	--	12	--	--	--		--	12	--	--	12

S	Price Creek	0610	Sage	--	--	80	--	--	--	--	--	80	80
S	Meadow Creek	0611	Grass	--	65	--	--	--	--	--	160	--	160
			Sage	--	95	--	--	--					
S	Four Eyes	0612	Grass	70	65	--	--	--	60	85	--	--	145
			Sage	--	10	--	--	--					
S	Hanson-Medicine Lodge	0613	Sage	40	235	--	--	--	--	255	20	--	275
S	Hanson-Brown	0614	Grass	175	--	--	--	--	--	175	--	--	175
S	Buhler	0615	Grass	280	--	--	--	--	--	280	80	--	360
			Sage	--	80	--	--	--					
S	Willy	0616	Grass	--	--	35	--	--	--	--	--	667	667
			Meadow	224	--	--	--	--					
			Conifer	--	--	--	--	408					
S	Holland-Buffalo Creek	0617	Grass	--	--	20	55	--	--	790	--	--	790
			Sage	--	715	--	--	--					
S	Holland-Carroll	0618	Sage	52	--	--	--	--	--	--	--	485	485
			Conifer	--	--	--	--	433					
S	Holland-Bannack Road	0619	Sage	--	35	--	140	--	--	175	--	--	175
S	Dell	0620	Grass	40	--	--	--	--	--	--	40	--	40
S	Huntsman	0621	Meadow	--	35	--	--	--	--	385	35	--	420
			Sage	--	385	--	--	--					
S	Detton	0622	Grass	--	237	--	--	--	--	450	--	30	480
			Meadow	--	--	10	--	--					
			Sage	--	203	--	--	--					
			Conifer	--	--	--	--	30					
S	Dillon	0623	Grass	--	--	--	30	--	--	--	--	70	70
			Sage	--	40	--	--	--					
S	Knox	0624	Meadow	--	26	--	--	--	--	410	--	--	410
			Sage	52	315	17	--	--					
S	Kent	0625	Grass	--	221	--	--	--	--	199	--	44	243
			Conifer	--	22	--	--	--					
S	Shesser-Horse Prairie	0626	Sage	--	--	--	--	5	--	--	40	--	40
			Conifer	--	--	--	--	35					
S	Shesser-Stoll Tract	0627	Sage	--	--	60	--	--	--	--	60	--	60
S	Rocky Hills	0628	Sage	--	--	80	--	--	--	80	--	--	80

* S = seasonal.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)						Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected					
				Excellent	Good	Fair	Poor	Not Identi- fied		Up	Static	Down	Undeter- mined	
S	Rocky Hills- Painter Creek	0629	Grass	--	40	--	--	--			120	--	--	120
			Sage	--	80	--	--	--						
S	Red Butte	0630	Grass	--	--	40	--	--		--	40	--	--	40
S	Robb Creek	0631	Grass	120	23	74	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	271	120	372	763
			Sage	--	54	--	--	--						
			Conifer	--	--	--	--	276						
			Waste	--	--	--	--	216						
S	Timber Butte	0632	Grass	--	248	--	--	--		--	88	--	160	248
S	Saier Ind./ S.G.C.	0633	Sage	--	--	20	--	--		--	40	--	--	40
			Conifer	--	--	--	--	20						
S	Henneberry Ridge	0634	Sage	--	90	15	--	--		--	--	--	105	105
S	Gallagher	0635	Sage	480	535	--	--	--		--	--	--	1,107	1,107
			Conifer	--	--	--	--	92						
S	Moss	0636	Grass	103	2	173	--	--		--	500	--	--	500
			Meadow	--	--	77	13	--						
			Sage	--	12	120	--	--						
S	Rody	0637	Grass	10	--	--	--	--		--	103	--	--	103
			Meadow	--	--	12	--	--						
			Sage	--	--	81	--	--						
S	Cottonwood Creek	0638	Sage	--	360	--	--	--		--	--	--	360	360
S	Wheat	0640	Sage	--	70	--	--	--		--	--	--	70	70
S	Allotment B	0641	Sage	--	40	--	--	--		--	--	40	--	40
S	Truax Creek	0642	Grass	--	66	216	--	--		--	374	--	--	374
			Sage	--	92	--	--	--						
S	Orphan	0643	Grass	--	--	40	--	--		--	--	40	--	40
S	Whitworth	0644	Sage	--	15	--	--	--		--	15	--	--	15
S	Horse Prairie- Bloody Dick	0645	Meadow	--	--	85	--	--		--	--	290	--	290
			Sage	--	100	--	--	--						
			Conifer	--	--	--	--	105						

S	Horse Prairie-Station Creek	0646	Grass	--	--	--	--	10	--	--	--	130	130
			Sage	--	120	--	--	--					
S	Horse Prairie-No. Frying Pan	0647	Sage	--	28	--	--	--	--	--	--	40	40
			Conifer	--	--	--	--	12					
S	Sand Dunes	0648	Sage	40	--	--	--	--	--	--	40.	--	40
S	Snowcrest	0649	Sage	--	10	--	--	--	40	--	--	--	40
			Conifer	--	--	--	--	30					
S	Forsythe	0650	Grass	--	--	175	--	--	--	--	260	--	260
			Sage	--	--	--	85	--					
S	Chaffin	0651	Grass	--	100	--	--	--	--	--	--	800	800
			Sage	--	540	--	--	--					
			Conifer	--	--	--	--	160					
S	Lichtenberg	0652	Grass	40	--	--	--	--	--	70	50	--	120
			Meadow	--	10	--	--	--					
			Sage	--	70	--	--	--					
S	Medicine Lodge	0653	Meadow	--	--	--	25	--	--	--	--	125	125
			Sage	--	60	40	--	--					
S	Donovan	0654	Grass	60	10	--	--	--	--	345	330	20	695
			Meadow	--	--	--	10	--					
			Sage	60	495	60	--	--					
S	Mansfield	0655	Sage	--	30	--	10	--	--	--	40	--	40
S	Crazy Springs	0656	Grass	--	1,449	246	--	--	--	--	--	1,695	1,695
S	Burk	0657	Sage	--	--	--	100	--	--	--	100	--	100
S	Nelson	0658	Sage	--	39	--	--	--	--	39	--	--	39
S	Devils Dance-hall	0659	Grass	271	--	--	--	--	--	545	--	--	545
			Sage	--	274	--	--	--					
S	Deno Creek	0660	Meadow	--	--	4	--	--	--	4	25	--	29
			Sage	--	25	--	--	--					
S	Rochester Basin	0661	Grass	--	844	--	--	--	563	595	281	102	1,541
			Sage	--	280	315	--	--					
			Conifer	--	26	76	--	--					
S	O.H.S.	0662	Conifer	--	--	--	--	67	67	--	--	--	67
S	Rice Ranches	0663	Grass	64	546	205	--	--	--	824	--	--	824
			Sage	--	--	9	--	--					
S	Wall Canyon	0664	Sage	--	--	29	--	--	--	--	--	39	39
			Waste	--	--	--	--	10					

* S = seasonal.

Status/ Grazing System*	Allotment Name	Allot-ment Number	Vege-tative Type	Range Condition (in acres)						Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected					
				Excellent	Good	Fair	Poor	Not Identi-fied		Up	Static	Down	Undeter-mined	
S	Belmont	0665	Grass	--	--	640	--	--		--	2,144	992	--	3,136
			Sage	--	--	1,868	628	--						
S	Sweetwater	0666	Sage	--	--	108	--	--		--	221	--	--	221
			Mtn. shrub	--	--	113	--	--						
S	Fossil Basin	0667	Grass	--	148	222	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	--	--	1,479	1,479
			Sage	--	71	572	--	--						
			Mtn. shrub	--	141	268	--	--						
			Conifer	--	--	16	--	--						
			Waste	--	--	--	--	41						
S	Tucker-Feely Tract	0668	Sage	--	295	--	--	--		198	98	--	354	650
			Conifer	--	--	--	--	355						
S	Granite-Moore	0669	Grass	70	155	--	--	--		--	1,489	--	295	1,784
			Meadow	12	6	--	--	--						
			Sage	--	600	440	--	--						
			Mtn. shrub	--	13	--	--	--						
			Conifer	--	366	--	--	122						
S	Sodak Mine	0670	Grass	--	86	1,424	--	--		--	1,536	--	52	1,588
			Sage	--	--	68	--	--						
			Mtn. shrub	--	10	--	--	--						
S	V. C. Custodial	0671	Sage	--	--	1,773	45	--		--	220	96	1,672	1,988
			Mtn. shrub	--	--	--	160	--						
			Conifer	--	10	--	--	--						
S	Belle	0672	Sage	--	7	213	--	--		--	--	--	220	220
S	Hungry Hollow	0673	Grass	--	--	40	--	--		--	--	--	329	329
			Sage	--	--	163	--	--						
			Mtn. shrub	--	31	95	--	--						
S	Idaho	0676	Grass	147	--	150	--	--		--	--	--	297	297
S	Spring Brook	0677	Grass	--	577	297	7	--		426	978	374	27	1,805
			Meadow	--	5	--	--	--						
			Sage	--	--	652	141	--						
			Mtn. shrub	--	25	74	--	--						
			Waste	--	--	27	--	--						
S	Lark	0678	Sage	--	--	1,035	--	--		--	1,035	--	--	1,035

S	Sand Coulee	0679	Meadow	--	37	--	--	--	98	658	--	--	756
			Sage	--	--	481	131	--					
			Mtn. shrub	--	--	107	--	--					
S	Timber Creek	0681	Meadow	--	8	--	--	--	--	161	--	121	282
			Sage	--	--	129	--	--					
			Mtn. shrub	--	41	--	--	--					
			Conifer	--	--	--	--	104					
S	Ruby Dam	0682	Grass	--	88	29	--	--	22	29	246	--	297
			Sage	--	--	74	--	--					
			Mtn. shrub	--	84	22	--	--					
S	Cabin Creek	0704	Grass	--	--	55	--	--	--	175	--	--	175
			Meadow	--	--	--	55	--					
			Sage	--	10	55	--	--					
S	Wildwood Land & Cattle Co.	0705	Grass	--	133	--	--	--	--	--	--	360	360
			Sage	--	--	7	--	--					
			Conifer	--	--	--	--	220					
S	Stibal	0707	Grass	--	--	415	--	--	--	70	10	805	885
			Meadow	--	--	120	--	--					
			Sage	350	--	--	--	--					
S	Slanger	0712	Grass	--	--	200	80	--	--	22	--	258	280
S	Turner	0715	Meadow	--	320	--	--	--	--	--	--	320	320
S	Stanford	0717	Grass	--	320	--	--	--	--	--	87	233	320
S	Farley-Shale	0718	Grass	--	--	26	--	--	--	--	--	274	274
			Conifer	--	--	--	--	248					
S	Snowline Isolated	0719	Grass	--	--	21	--	--	--	--	359	--	359
			Meadow	--	--	--	62	--					
			Sage	257	--	19	--	--					
S	Reservoir Creek	0723	Grass	--	--	--	--	45	--	--	240	--	240
			Sage	195	--	--	--	--					
S	Roe Ranch	0729	Grass	3	--	--	--	--	--	110	--	--	110
			Sage	--	107	--	--	--					
S	G. W. Jones	0731	Grass	--	--	107	--	--	--	120	--	--	120
			Meadow	--	--	10	--	--					
			Waste	--	--	--	--	3					
S	Holton Bros.	0733	Sage	40	250	155	--	--	--	407	38	--	445
S	Davis	0737	Sage	--	--	45	--	--	--	25	--	365	390
			Conifer	--	--	--	--	320					
			Waste	--	--	--	--	25					
S	Clemow Ranches	0742	Meadow	--	74	--	--	--	--	--	--	80	80
			Conifer	--	--	--	--	6					

* S = seasonal.

				Range Condition (in acres)						Current Trend (in acres)				
				Current					Projected					
Status/ Grazing System*	Allotment Name	Allotment Number	Vegetative Type	Excellent	Good	Fair	Poor	Not Identified		Up	Static	Down	Undetermined	Total Acreage by Allotment
S	Lester Else Ranch	0744	Meadow	40	--	--	--	--		--	--	--	40	40
S	McKnight Creek	0746	Grass	275	40	600	--	--		715	50	--	225	990
			Sage	--	--	50	--	--						
			Conifer	--	--	--	--	25						
S	Mill Point	0751	Grass	--	--	30	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	750	--	235	985
			Sage	--	280	300	--	--						
			Conifer	--	375	--	--	--						
S	Barrett Ranch	0754	Meadow	--	--	--	--	5		--	--	25	--	25
			Sage	--	20	--	--	--						
S	Alkali Creek	0755	Grass	--	30	--	--	--		--	--	492	--	492
			Sage	--	--	462	--	--						
S	Frenchie Creek	0756	Sage	--	60	--	--	--		--	160	--	--	160
			Conifer	--	--	--	--	100						
S	Road Agent Rock	0759	Sage	--	240	--	--	--		--	335	--	--	335
			Conifer	--	--	95	--	--						
S	Shaffner	0760	Grass	--	125	--	--	--		--	--	200	--	200
			Sage	75	--	--	--	--						
S	Pierce S.G.C.	0762	Sage	--	80	140	--	--		--	--	120	100	220
S	Antelope Creek	N/A	Grass	--	80	--	--	--		--	80	--	--	80
S	Birch Creek	N/A	Grass	--	--	40	--	--		--	--	--	40	40
S	Boner Knob	N/A	Grass	--	--	--	--	17		--	17	--	--	17
S	Buckwheat	N/A	Grass	--	--	30	--	--		--	40	--	--	40
			Mtn. shrub	--	10	--	--	--						
S	Bufflehead	N/A	Grass	--	66	--	--	--		--	--	66	--	66
S	Butch Hill	N/A	Sage	--	--	40	--	--		--	--	--	40	40
S	Cameron Bench	N/A	Grass	--	40	--	--	--		--	--	40	--	40
S	Casey	N/A	Sage	160	--	--	--	--		--	--	160	--	160
S	Checkerboard	N/A	Grass	--	22	--	--	--		--	59	--	64	123
			Sage	--	--	37	--	--						
			Conifer	--	--	--	--	64						

S	Cherry Creek	N/A	Sage	--	55	35	--	--	--	--	90	--	90
S	Chokecherry	N/A	Grass	--	30	--	--	--	--	30	--	--	30
S	Condor	N/A	Grass	--	25	15	--	--	--	40	--	--	40
S	Corral Creek	N/A	Grass	--	235	--	--	--	--	125	--	110	235
S	Dickie	N/A	Sage	--	43	--	--	6	--	49	--	119	168
			Conifer	--	--	--	--	116					
			Waste	--	--	--	--	3					
S	Dry Hollow	N/A	Grass	--	--	40	--	--	--	40	--	--	40
S	Ennis Lake	N/A	Grass	--	22	--	--	--	--	35	--	--	35
			Meadow	--	--	--	--	6					
			Waste	--	--	--	--	7					
S	Flying N	N/A	Grass	--	--	--	60	--	--	475	--	--	475
			Sage	--	210	170	35	--					
S	Harrison	N/A	Sage	--	110	--	--	--	--	110	--	--	110
S	Jackrabbit	N/A	Grass	--	121	--	--	--	40	81	--	--	121
S	Johnny Gulch	N/A	Grass	--	40	--	--	--	--	40	--	--	40
S	Kidd	N/A	Grass	--	52	--	--	--	--	33	19	--	52
S	Lima	N/A	Grass	--	36	4	--	--	--	40	--	--	40
S	Little America	N/A	Grass	--	158	--	--	--	158	--	--	--	158
S	London Hills	N/A	Grass	--	32	--	--	--	--	249	--	351	600
			Mtn. shrub	--	--	--	--	291					
			Waste	--	--	--	--	277					
S	Miner Creek	N/A	Sage	--	--	65	--	--	--	--	--	127	127
			Conifer	--	--	--	--	62					
S	Monida	N/A	Grass	--	185	--	--	--	185	--	--	--	185
S	Moose Creek	N/A	Grass	--	26	64	--	--	--	--	--	160	160
			Meadow	--	--	14	--	--					
			Sage	--	--	56	--	--					
S	Mt. Humbug	N/A	Sage	--	--	--	--	68	--	--	68	92	160
			Conifer	--	--	--	--	92					
S	Mule Shoe	N/A	Grass	--	--	--	--	42	--	--	42	--	42
S	Mustang	N/A	Sage	--	--	198	--	--	--	198	--	82	280
			Waste	--	--	--	--	82					
S	Ruddy Duck	N/A	Grass	30	--	--	--	--	25	--	195	--	220
			Meadow	--	--	140	--	--					
			Sage	--	15	35	--	--					

* S = seasonal.

Status/ Grazing System*	Allotment Name	Allotment Number	Vegetative Type	Range Condition (in acres)						Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected					
				Excellent	Good	Fair	Poor	Not Identified		Up	Static	Down	Undetermined	
S	Shepherd Mtn.	N/A	Sage	--	--	74	--	--		--	--	--	74	74
S	Spokane	N/A	Grass	--	6	--	--	--		--	--	--	22	22
			Sage	--	--	16	--	--						
S	Steamboat Rock	N/A	Grass	234	190	1,964	--	--	No attempt has been made to project range condition for the non-AMP allotments.	589	3,219	1,891	350	6,049
			Meadow	--	72	63	--	--						
			Sage	--	2,762	414	--	--						
			Conifer	--	36	--	--	314						
S	Sugarloaf Mtn.	N/A	Sage	--	79	--	--	--		--	--	79	--	79
S	Trapper Creek	N/A	Sage	--	38	51	--	--		--	60	71	--	131
			Conifer	--	42	--	--	--						
S	Triangle	N/A	Grass	--	--	--	30	--		--	32	--	22	54
			Sage	--	--	--	2	--						
			Waste	--	--	--	--	22						
S	Tumbleweed	N/A	Sage	--	--	40	--	--		--	40	--	--	40
S	Warm Springs	N/A	Meadow	--	17	--	--	--		--	--	--	400	400
			Sage	--	23	194	--	--						
			Conifer	--	--	--	--	124						
			Waste	--	--	--	--	42						
Subtotal, Seasonal Non-AMPs				7,774	42,675	44,415	3,779	24,039		9,232	55,764	23,897	33,789	122,682
Unallotted Areas														
None	Harry Shaw	0431	Sage	--	7	--	--	--		--	--	--	7	7
None	Wigwam Creek	0503	Grass	--	75	--	--	--		--	550	--	90	640
			Sage	--	386	72	--	--						
			Conifer	--	--	--	--	17						
			Waste	--	--	--	--	90						
None	M.C.C.S.A.	0505	Conifer	--	--	--	--	160		--	--	--	160	160
None	Big Hole	0515	Meadow	--	--	--	--	23		--	--	--	160	160
			Conifer	--	--	--	--	137						
None	Overnite	0520	Sage	--	--	5	--	--		--	--	--	5	5

None	Axes Canyon	0535	Sage	--	--	--	--	2	--	--	--	74	74
			Conifer	--	--	--	--	38					
			Waste	--	--	--	--	34					
None	Corral Creek	0543	Grass	--	7	--	--	--	--	--	--	400	400
			Sage	--	51	--	--	--					
			Conifer	--	--	--	--	342					
None	Jumping Horse	0546	Mtn. shrub	--	--	--	--	40	--	--	--	40	40
None	Rio Puerco	0639	Grass	10	--	--	--	--	--	--	--	40	40
			Sage	--	--	30	--	--					
None	Stone Creek	0674	Sage	--	--	40	--	--	--	40	--	--	40
None	McHessor Creek	0680	Grass	19	122	33	--	12	--	221	--	1,016	1,237
			Sage	--	--	49	--	--					
			Mtn. shrub	99	--	--	--	25					
			Conifer	--	--	--	--	878					
None	Tom Creek	0701	Grass	70	210	--	--	--	--	--	--	4,120	4,120
			Meadow	45	--	--	--	--					
			Sage	--	35	55	--	2,995					
			Conifer	--	--	--	--	650					
			Waste	--	--	--	--	60					
None	Rock-Moose	0721	Grass	--	9	--	--	180	--	--	--	1,358	1,358
			Sage	--	--	23	--	22					
			Conifer	--	--	--	--	1,124					
None	Flying N	0724	Sage	--	100	--	--	--	--	120	--	--	120
			Conifer	--	--	--	--	20					
None	Big Hole Grazing Assn.	0743	Grass	--	--	60	--	--	--	--	--	314	314
			Meadow	--	--	12	--	--					
			Sage	--	--	159	--	--					
			Conifer	--	--	--	--	83					
None	Aspen	N/A	Sage	--	--	--	87	--	--	87	--	--	87
None	Badger	N/A	Sage	30	--	--	--	--	--	80	--	--	80
			Conifer	--	--	--	--	50					
None	Bear Gulch	N/A	Grass	--	71	--	--	--	--	--	--	1,568	1,568
			Sage	--	32	--	--	--					
			Mtn. shrub	--	90	--	--	103					
			Conifer	--	--	--	--	864					
			Waste	--	--	--	--	408					
None	Blaine Spring	N/A	Grass	76	--	--	--	--	76	--	--	--	76
None	Bureau of Reclamation	N/A	Grass	--	95	40	--	--	--	160	--	--	160
			Sage	--	25	--	--	--					
None	Caboose Canyon	N/A	Sage	--	145	--	--	--	--	145	--	15	160
			Conifer	--	--	--	--	15					

* S = seasonal.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)						Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected					
				Excellent	Good	Fair	Poor	Not Identi- fied		Up	Static	Down	Undeter- mined	
None	Charcoal Mtn.	N/A	Grass	--	--	--	--	312		--	1,927	--	--	1,927
			Sage	--	--	--	--	635						
			Mtn. shrub	--	--	--	--	421						
			Conifer	--	--	--	--	559						
None	Clovis Gulch	N/A	Sage	--	--	--	8	--	No attempt has been made to project range condition for the non-AMP allotments.	--	--	--	40	40
			Conifer	--	--	--	--	32						
None	Deadwood Gulch	N/A	Sage	--	70	--	--	--		--	230	--	140	370
			Mtn. shrub	160	--	--	--	--						
			Conifer	--	--	--	--	140						
None	Dog Paw	N/A	Grass	--	23	--	--	--		--	32	--	12	44
			Sage	--	--	9	--	--						
			Conifer	--	--	--	--	12						
None	Dog Town	N/A	Grass	--	--	20	--	--		--	20	--	14	34
			Waste	--	--	14	--	--						
None	Dry Creek	N/A	Sage	--	--	18	--	--		--	--	--	34	34
			Conifer	--	--	--	--	16						
None	East Fork	N/A	Grass	--	131	--	--	--		--	--	--	251	251
			Meadow	16	10	--	--	--						
			Sage	--	10	49	--	--						
			Conifer	--	--	--	--	35						
None	Fox Gulch	N/A	Grass	100	--	--	--	--		--	--	--	160	160
			Conifer	--	--	--	--	60						
None	Game Range	N/A	Grass	--	233	75	--	--		391	--	--	169	560
			Meadow	--	15	82	--	--						
			Sage	--	--	42	--	--						
			Mtn. shrub	--	37	--	--	--						
			Waste	--	--	--	--	76						
None	Goat Mtn.	N/A	Waste	--	--	--	--	1,389		--	--	--	1,389	1,389
None	Irishman	N/A	Grass	134	--	159	--	--		--	499	--	3,383	3,882
			Sage	--	60	--	--	--						
			Mtn. shrub	--	179	--	--	--						
			Conifer	--	--	--	--	3,056						
			Waste	--	--	--	--	294						
None	Lodgepole	N/A	Conifer	--	--	--	--	80		--	--	--	80	80

None	Mahogany	N/A	Sage	--	101	--	--	--	169	--	--	117	286
			Mtn. shrub	68	--	--	--	--					
			Conifer	--	--	--	--	91					
			Waste	--	--	--	--	26					
None	Maiden Rock	N/A	Waste	--	--	--	--	59	--	--	--	59	59
None	Montana Unleased	N/A	Grass	--	320	--	--	--	320	--	--	--	320
None	Pony	N/A	Grass	--	--	--	--	9	--	--	--	9	9
None	Red Bluff	N/A	Grass	56	621	9	--	--	747	--	--	116	863
			Sage	--	--	78	--	--					
			Mtn. shrub	--	38	23	31	7					
None	Red Mountain Campground	N/A	Grass	--	174	--	--	--	186	--	--	38	224
			Sage	--	--	--	12	--					
			Waste	--	38	--	--	--					
None	Retort Mountain	N/A	Grass	40	34	--	--	14	--	127	--	1,273	1,400
			Sage	--	42	--	--	--					
			Conifer	--	--	--	--	1,142					
			Waste	--	--	--	--	128					
None	Rosy Finch	N/A	Sage	--	--	45	--	180	--	--	60	1,140	1,200
			Mtn. shrub	--	--	--	--	44					
			Conifer	--	--	--	--	876					
			Waste	--	--	--	--	55					
None	Ruby Mountain	N/A	Waste	--	--	--	--	12,640	--	--	--	12,640	12,640
None	Sandpiper	N/A	Grass	--	--	51	--	--	68	--	--	46	114
			Meadow	17	--	--	--	--					
			Waste	--	--	--	--	46					
None	Sand Creek	N/A	Grass	--	12	1	--	--	--	62	--	--	62
			Mtn. shrub	49	--	--	--	--					
None	Sheep Mountain	N/A	Grass	--	375	--	--	--	--	--	--	2,559	2,559
			Meadow	--	140	--	--	--					
			Sage	20	45	--	--	--					
			Conifer	--	--	--	--	1,979					
None	Shepherds Cross	N/A	Grass	--	--	290	--	--	305	--	--	--	305
			Meadow	--	--	--	10	--					
			Sage	--	--	--	5	--					
None	Shrike	N/A	Grass	230	--	170	--	--	--	--	400	--	400
None	Snowberry	N/A	Conifer	--	--	--	--	40	--	--	--	40	40
None	Sourdough	N/A	Grass	738	145	--	--	--	883	77	--	--	960
			Sage	--	65	12	--	--					

* S = seasonal.

Status/ Grazing System*	Allotment Name	Allot- ment Number	Vege- tative Type	Range Condition (in acres)						Current Trend (in acres)				Total Acreage by Allotment
				Current					Projected					
				Excellent	Good	Fair	Poor	Not Identi- fied		Up	Static	Down	Undeter- mined	
None	Swamp Creek	N/A	Meadow	--	40	--	--	--	No attempt has been made to project range condition for the non-AMP allotments.	--	--	--	40	40
None	Two Heart	N/A	Sage	--	47	--	--	--		--	47	--	45	92
			Conifer	--	--	--	--	45						
Subtotal, Unallotted Areas				1,977	4,465	1,725	153	32,870		3,145	4,424	460	33,161	41,190
Total, All Allotments				100,397	417,017	268,779	19,019	149,414		126,916	420,716	254,015	152,979	954,626

SOURCE: BLM, 1979

APPENDIX 4:

GRAZING SYSTEMS

REST-ROTATION GRAZING

Under a rest-rotation grazing system, grazing is deferred on various parts of an allotment during succeeding years, and the deferred parts are allowed complete rest for one or more years (Society for Range Management 1974). The allotment is divided into pastures, usually with comparable grazing capacities. Each pasture is systematically grazed and rested so that livestock production and other resource values are provided for, while the vegetation cover is simultaneously maintained or improved. This practice provides greater protection of the soil resource against wind and water erosion (USDA, FS 1965; Hormay 1970; USDA, FS 1972; Ratliff and Reppert 1974).

Any of several rest-rotation grazing systems may be used, depending upon the objectives for the allotment and the number of pastures. Figure AP4-1 gives a typical example of a four-pasture rest-rotation system.

DEFERRED ROTATION GRAZING

Deferred rotation is the discontinuance of grazing on different parts of an allotment in succeeding years. This allows each pasture to rest successively during the growing season to permit seed production, establishment of seedlings, and restoration of plant vigor (Society for Range Management 1974). One or more pastures are grazed during the spring, while the remaining one or more pastures are rested until after seed ripening of key species, and then grazed. Deferred rotation grazing differs from rest-rotation grazing in that no yearlong rest is provided. Figure AP4-2 illustrates a typical example of deferred rotation grazing.

DEFERRED GRAZING

Deferred grazing is the discontinuance of grazing by livestock on an area for a specified period of time during the growing season. Under this system, grazing would begin after key plants have reached an advanced stage of development in their annual growth cycle. The growing season rest provided by this system promotes plant reproduction, establishment of new plants, or restoration of the vigor of old plants (American Society of Range Management 1964).

ALTERNATE GRAZING

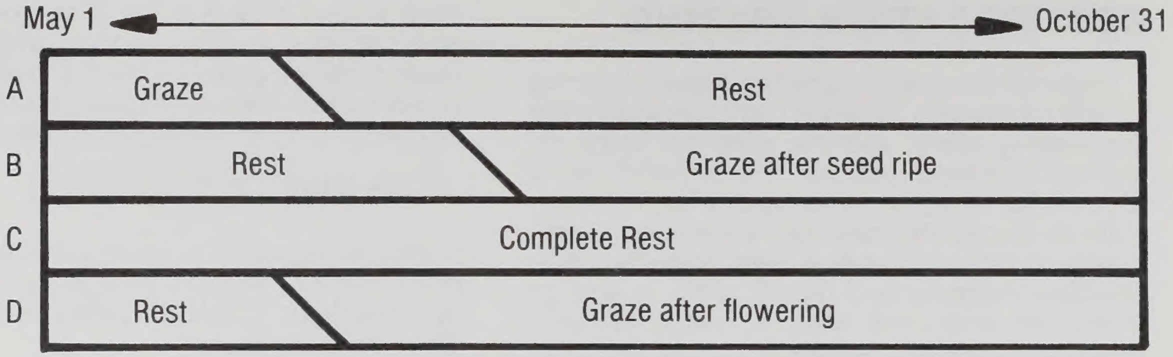
Alternate grazing is grazing by livestock every other season, with the area being rested in the alternate year. Stoddart, Smith, and Box (1975) describe the system:

> Rotation grazing, or alternate grazing, involves subdividing the range into units and grazing one range unit, then another, in regular succession. The rotation system of grazing is based upon the assumption that animals in large numbers make more uniform use of the forage, and that a rest from grazing is beneficial to the plant, even though it must support a greater number of animals in the shorter time during which it is grazed. Certainly, proper rotation grazing results in more uniform utilization. Larger numbers of animals in small units are forced to spread over the entire area and to use the available forage more uniformly. Trampling is reduced because animals are held on small areas where feed is more abundant, and hence less travel is necessary.

SHORT-DURATION, HIGH-INTENSITY GRAZING

High-intensity grazing permits short-duration grazing with the stocking rate higher than what would be considered normal. The purpose of this type of system is to obtain uniform use of all plants, desirable and undesirable alike, and to prevent regrazing on regrowth of the most desirable plants. This system allows desirable plants to compete for nutrients on an equal basis with less desirable plants.

Figure Ap4-1: FOUR-PASTURE REST ROTATION GRAZING SYSTEM

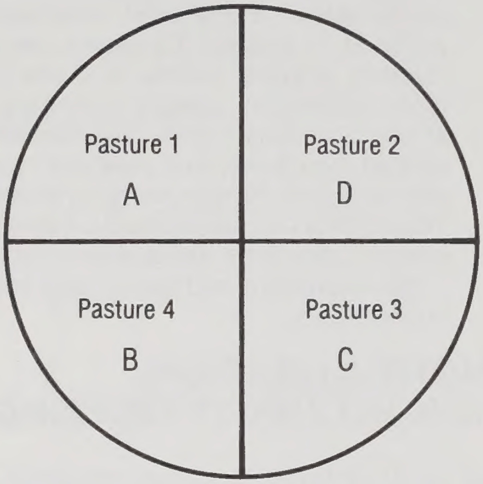


Treatment A – Graze for livestock production.

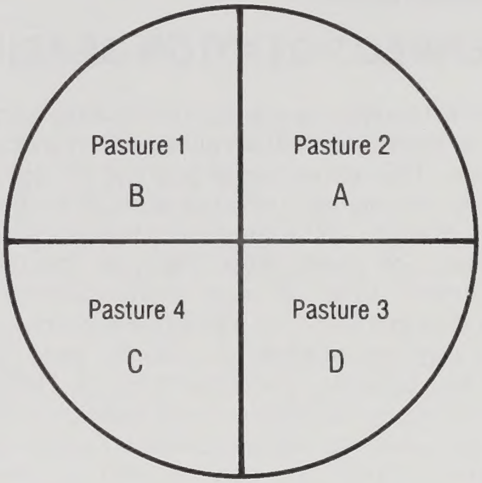
Treatment B – Rest for plant vigor until seed has ripened, then graze. (Approx. July 15).

Treatment C – Complete rest for new seedling establishment and litter accumulation.

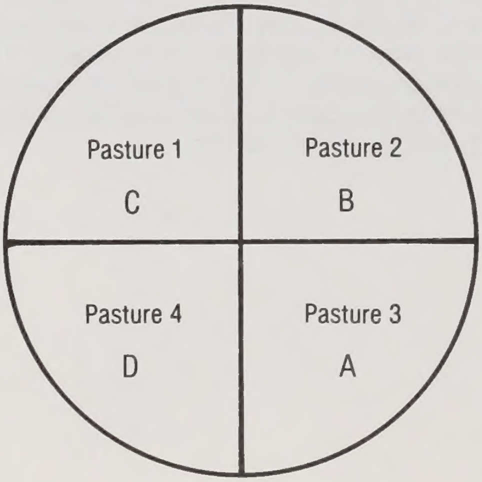
Treatment D – Rest for continued seedling establishment (flowering time), then graze. (Approximately June 15).



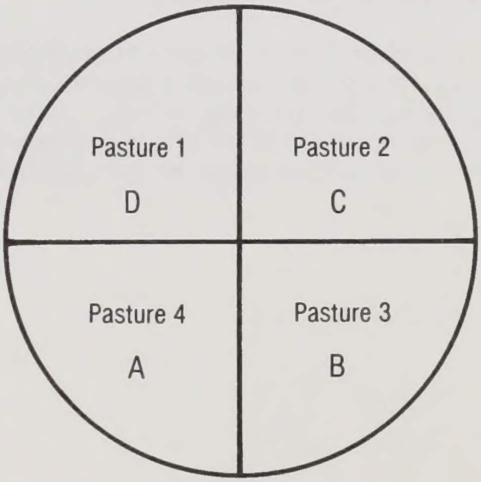
Year 1



Year 2



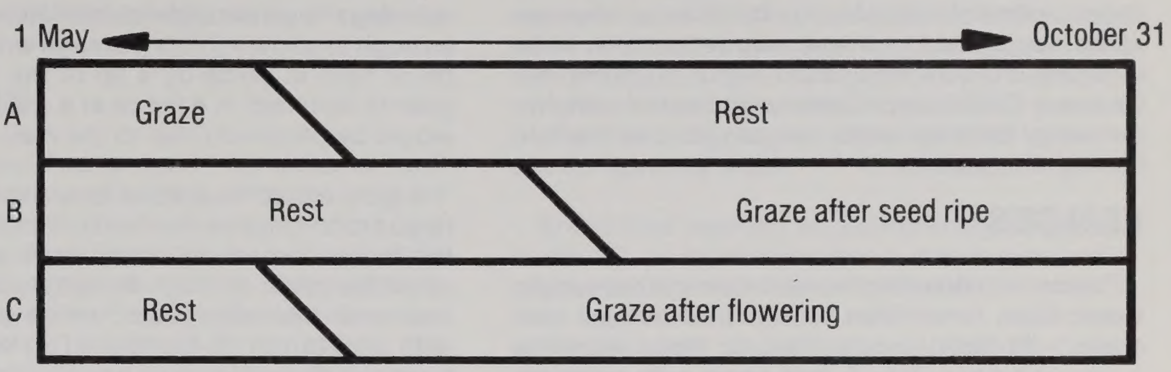
Year 3



Year 4

SOURCE: BLM, 1979

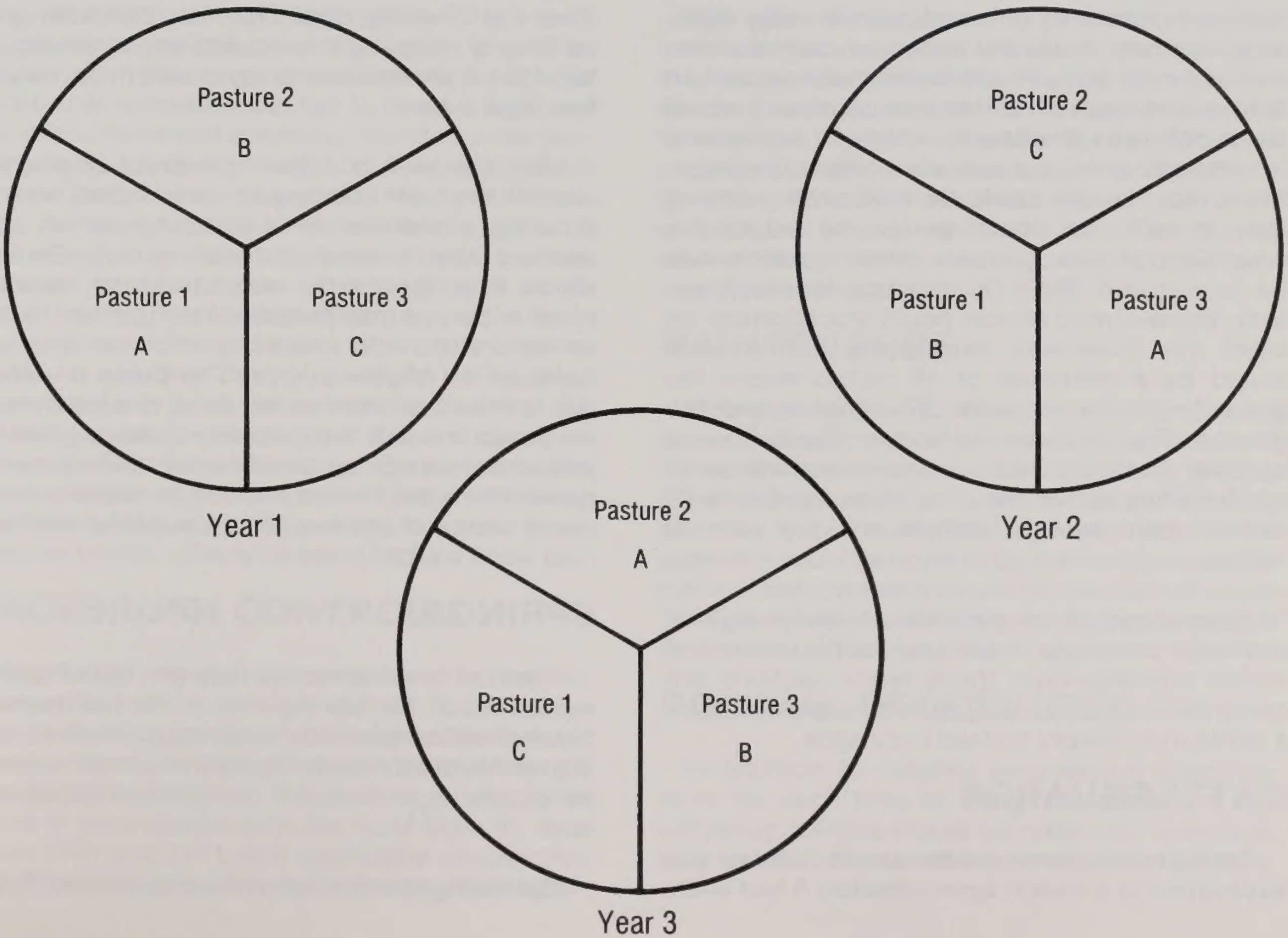
Figure Ap4-2: THREE-PASTURE DEFERRED ROTATION GRAZING SYSTEM



Treatment A – Graze for livestock production.

Treatment B – Rest for plant vigor until seed has ripened, then graze.

Treatment C – Rest for seedling establishment and continued plant vigor (flowering time), then graze.



SOURCE, BLM, 1979.

APPENDIX 5:

RANGE DEVELOPMENTS

Certain requirements are inherent in implementing any federal action on BLM-administered lands. Any action, whether livestock grazing and construction of related range facilities or land use plans, is guided by these requirements to help mitigate impacts that could occur to other resources. Details applicable to proposed individual range developments are provided in the following discussions.

FENCES

Fence construction involves several separate steps. First, fence lines have to be surveyed and staked. Stretch panels (two to three wooden posts approximately 6 feet apart with wooden braces between each pair of posts) must be constructed at a minimum of each quarter-mile along the fence line. Steel posts should be gray; treated wood posts are to be left natural. The top wire is then unrolled and stretched between the panels. Where called for, steel wire stays are placed between each two posts.

Where fences would cross existing roads, either gates or cattleguards would be installed. Placement of cattleguards would be determined by traffic volumes. All new fences would have at least one gate every mile and gates in every right-angle corner. Pastures and boundary division fences would be built with barbed wire except on antelope ranges, where the bottom strand would be smooth wire to allow for antelope movement. In strategic antelope and elk winter concentration areas, fences could be built with poles or rails, or with "let down" panels, to reduce the possibility of entanglement. Most fences would be four-strand "type D" antelope fences; however, three-strand fences could occasionally be used. For three-wire fences, the bottom wire would be a minimum of 16 inches above the ground and the top wire 38 inches above the ground. For four-strand fences, the following spacing would be used: bottom wire a minimum of 16 inches above the ground, second wire 22 inches, third wire 30 inches, and top wire 42 inches.

Specialized fence sections are proposed for drainage crossings to prevent cattle movement within drainageways; these fence sections are composed of wood swing panels suspended from a cable over deeply incised drainages.

CATTLEGUARDS

Cattleguard construction would involve the excavation of a trench approximately 8 feet wide, 11 feet long, and 2 feet deep. A concrete base would be set into the excavation, and earth backfilled and compacted around it. A metal grid with openings large enough to deter animals but close enough to allow vehicle passage would be bolted on or held in place by a lip of the base. Cattleguards installed in a fence at a road intersection would be perpendicular to the road in all cases.

A gate would be placed to one side of the cattleguard to allow movement of livestock through the fence. Extremely heavy loads or wide loads could be taken through the adjacent gate rather than over the cattleguard, which would be built with a 15-ton to 20-ton limit. To eliminate safety hazards, all cattleguards would be placed essentially level with the existing or proposed road surface, but with sufficient pitch to allow water to drain.

WELLS

Well development begins with location and staking of the well site. The well drilling rig, usually mounted on a truck, is placed on a leveled site. Wells are drilled with a cable tool or rotary drill of 2 to 8 inches in diameter. Depths range from 50 to 1,200 feet. Casing the drilled hole is done by lowering steel pipe into the hole and welding or coupling the successive pieces of pipe together. A perforated casing is used in the water-bearing zones.

After the well is drilled, concrete is poured around the well opening to form a pad, which provides a platform for a pumping station and sanitary seal around the well casing. Except where flowing artesian water is found, various types of pumps may be used to bring water to the surface: windmills, electric pumps, or internal combustion engine pumps. The pump or windmill is installed over the well hole, or a submersible pump is used. If an electric motor is used to power the pump, an overhead or underground power line is built to the well site from the nearest power source. A stockwater tank would be installed near each well.

SPRINGS

In spring development, a hole and trenches are excavated at the spring site. A vertical culvert pipe collection box with horizontal collector lines is then installed. Water is piped in a small diameter plastic pipe from the box to the stockwater tank.

The spring development would be fenced. Topsoil would be re-spread over disturbed areas and native grass species would be seeded unless otherwise specified. Stockwater tanks would be located some distance away from the spring development.

PIPELINES

Pipelines would carry water from a source (well or spring) to a stockwater tank. After the pipeline route is surveyed and staked, a pipeline trench is dug no deeper than 6 feet and no wider than 24 inches. The plastic pipe used for the pipeline is generally no greater than 2 inches in diameter. After the pipeline is placed in the trench, the trench is backfilled, and a berm is mounded over the trench to prevent depressions caused by settlement of the backfill material. Suitable drainage and erosion control measures are constructed. No trenching is required if a pipelaying machine is used. After the trench is filled, the pipeline site is seeded to grasses native to the area, or as otherwise specified. Livestock watering tanks are installed at points along the pipeline.

STOCK TANKS

Stockwater tanks would be round tanks or rectangular metal boxes of varying sizes. They would be painted a neutral color, preferably gray. The size of each tank would be determined by the number of animals expected to use the tank and the amount of water available. Wooden posts partially buried in the ground and a wooden frame around the tank could be used to steady the structure. All wood would be treated a neutral color. A pad of either gravel or concrete should be constructed for the tank to sit on. All stock tanks would be equipped with bird ramps or other devices to prevent the drowning of birds and mammals. An overflow drainpipe would be installed from the tank to drain excess water from the drinking area. Depending on soil conditions, a gravel surface could be spread to surround the stock tank to minimize erosion. Any remaining disturbed area would be seeded to native grass species unless otherwise specified.

SAGEBRUSH CONTROL

Sagebrush control is prescribed to reduce competition with grasses and forbs. Each spraying or burning project would be evaluated for environmental considerations and cleared through the BLM Washington Office on a site-specific basis in accordance with the BLM Manual, sections 7331 and 7411, and applicable cooperative agreements with other federal and state agencies. Sagebrush spraying is proposed for 1,800 acres, and prescribed burning is proposed for 6,283 acres. The rate of application would be in accordance with the manufacturer's registered label, with water or diesel fuel being used as a dilutant. Spraying is usually done by either fixed-wing aircraft or helicopter. To provide for areas to be excluded, flagging would be installed throughout the sprayed area.

Prescribed burning would normally take place in the fall, as more complete burns assure better sagebrush control. If less than maximum control was desired to enhance wildlife or watershed values, burning would be conducted in the early spring.

PLOWING AND SEEDING

Where insufficient desirable forage plants exist, and natural revegetation and intensive grazing management cannot restore range condition to satisfactory levels, seeding may be necessary. The object of the proposed plowing and seeding or interseeding is to reduce or eliminate less desirable plant species and increase available forage through replacement with more desirable species. The identified sites would be plowed or pitted with various types of mechanical equipment and then reseeded to a more desirable species or mixture of species. In areas where interseeding is used, no seedbed preparation would be required. Plowed and seeded land (1,331 acres proposed) would be limited to the land with the gentlest slopes so that erosion by surface runoff would be minimized. Where the land to be plowed was not flat, plowing would be done on the contour (BLM Manual, section 7312).

MAINTENANCE

Policy and guidelines for maintenance of range developments constructed on lands administered by the BLM are discussed in section 7120, "Watershed Management," in the *BLM Manual.* Existing and new fences built primarily for livestock management would be covered by maintenance agreements. Developments would be maintained under BLM guidelines. Routine day-to-day repairs would be the responsibility of the licensee.

GENERAL PROCEDURES

In addition to detailed engineering specifications for each type of range development, the following policies would be observed; therefore, they are not considered in the analysis of impacts.

1. No ground disturbance (excavation, road construction, vegetation removal) will be allowed without its approval by the district manager or his authorized representative.

2. For range development projects that require soil disturbance, such as pipelines, topsoil is to be stockpiled and replaced when the project is completed. Revegetation of all disturbed areas is to be done with native grasses, or as otherwise specified by the district manager.

3. Public and private roads damaged by the contractor are to be restored at his expense.

4. All access construction is to be accomplished with due regard for environmental considerations. However, existing access and off-road vehicles are to be used for access as much as possible. After designated sections of the access or haul roads are no longer needed for construction or traffic purposes, the ditches are to be filled and the roadway rough-graded to restore approximately the original contour of the ground or to produce a pleasing appearance by the formation of natural, rounded slopes. After completion of the rough-grading, the access road is to be scarified or plowed, and then harrowed. The cut and fill slopes and roadbed are to be smoothed and seeded with a cover of grasses native to the area or known to grow in the area, or as otherwise specified.

5. The contractor is to be responsible for complying with all applicable state air pollution control rules and regulations.

6. The contractor is to take sufficient precautions to prevent pollution of existing streams, lakes, or reservoirs encountered during the project development.

7. Erosion control features are to be constructed concurrently with other work. The district manager will retain the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, and barrow and embankment operations in progress, commensurate with the contractor's capability and progress in completing the finish grading, mulching, seeding, and other such permanent erosion control measures.

8. All actions will be in compliance with BLM Visual Resource Management design procedures and contrast rating procedures.

9. To comply with the National Historic Preservation Act of 1966, 36 CFR 800, and Executive Order 11593, all areas where ground is to be disturbed by range developments are to be inventoried for prehistoric and historic features. Where feasible, all sites found by this inventory are to be avoided. The results of the inventory and determinations of eligibility for the National Register of Historic Places are to be forwarded to the Montana State Historic Preservation Officer for comment.

If sites are found to be eligible for the national register and cannot be avoided, a determination of the effect of the project on the site(s), including appropriate mitigating measures if necessary, will be done in consultation with the Montana Historic Preservation Officer and the Advisory Council on Historic Preservation. No action affecting the site is to be taken until the advisory council has had opportunity to make comments.

If buried cultural remains are encountered during construction, the operator is to temporarily discontinue construction until the BLM evaluates the discovery and determines the appropriate action.

10. In accordance with section 603(a) of the Federal Land Policy and Management Act, before any action is taken that could impair suitability for wilderness, the area is to be inventoried and impacts on potential or existing wilderness assessed. Until Congress acts on an area that has been designated for wilderness study, existing multiple use activities, including grazing, will continue. New uses or expanded existing uses will be allowed if the impacts will not impair the suitability of the area for wilderness.

11. No action is to be taken by the BLM that could jeopardize the continued existence of any federally listed threatened or endangered plant or animal species. An endangered species clearance with the U.S. Fish and Wildlife Service (FWS) would be required before any part of the proposal or alternatives would be implemented that could affect an endangered species or its habitat.

In situations where data are insufficient to make an assessment of proposed actions, surveys of potential habitats will be made before a decision is made to take any action that could affect threatened or endangered species. Should the BLM determine that there could be an effect on a federally listed species, formal consultation with the FWS would be initiated. This situation exists for the northern Rocky Mountain wolf. In the interim period before formal consultation, the BLM will not take any action that would make an irreversible or irretrievable commitment of resources that would foreclose the consideration of modifications or alternatives to the proposed action. When the FWS opinion is received, if it should indicate the action would be likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, the action will be abandoned or altered as necessary. All procedures thus described are in compliance with BLM Manual, section 6840.

The BLM also is to comply with any state laws applying to animal or plant species identified by the state as being threatened or endangered (in addition to the federally listed species).

12. A reconnaissance survey of proposed range development sites for the likelihood of uncovering scientifically significant fossils is to be made only under the following conditions: (1) when the proposed development site is in an area known for the collection of scientifically significant fossils, (2) when the proposed development site is in a rock formation known to contain abundant numbers of scientifically significant fossils, or (3) when the proposed development site is in an area known to contain prehistoric kill sites.

13. The 1971 memorandum of understanding (suppplement 1) between the BLM and the Montana Fish and Game Commission concerning the mechanical and chemical alteration of vegetation is to be adhered to. This agreement calls for formal planning and coordination for any treatment to begin at least two years before implementation. It also stipulates the procedures for resolution of disagreements over the size, location, and timing of vegetation treatment.

14. An adequate buffer strip is to be left untreated on both sides of all drainages containing live water streams and lakes in or adjacent to vegetation manipulation projects.

15. Spray operations are not to be conducted in winds of more than 7 miles per hour, so that proper placement can be ensured and the spraying of nontarget areas can be avoided.

16. Vegetation manipulation sites are to be carefully selected with regard to topography and soil type, so that soil compaction, reduced infiltration, and soil loss can be minimized.

17. Reseeding is to be done by drilling wherever feasible.

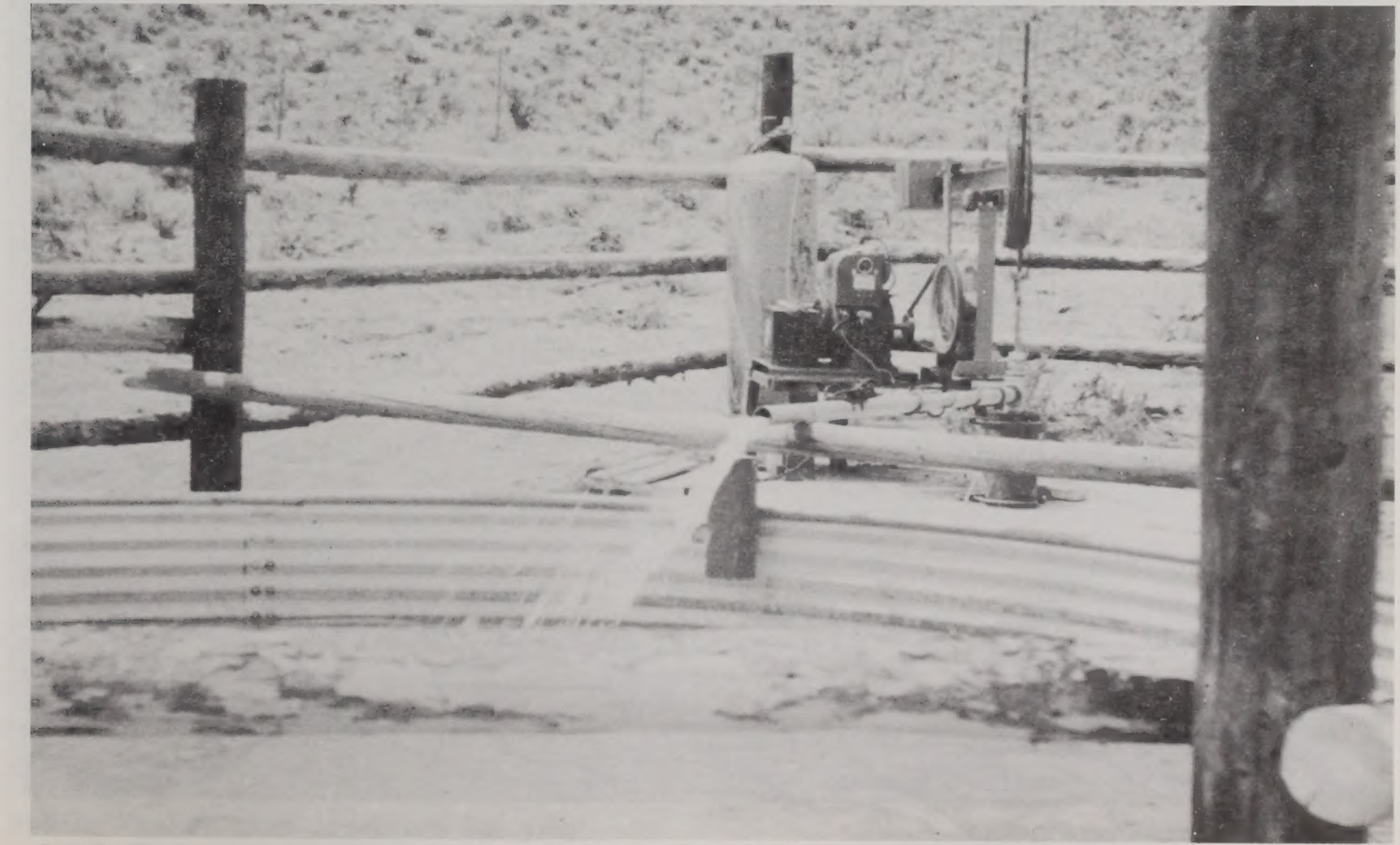
18. Livestock should be restricted from vegetation manipulation sites (spraying, burning, interseeding, plowing and seeding) a minimum of one full growing season and until seeds ripen the second growing season. This would allow seedlings to become firmly established and allow established plants to recover and gain in vigor prior to receiving grazing pressure.

Ap5-1. **Typical Four-strand Barbed Wire Fence**

Approximately 193 miles of new fence would be constructed under the proposed action. In antelope habitat the bottom strand would be replaced with smooth wire.

Ap5-2 Wells

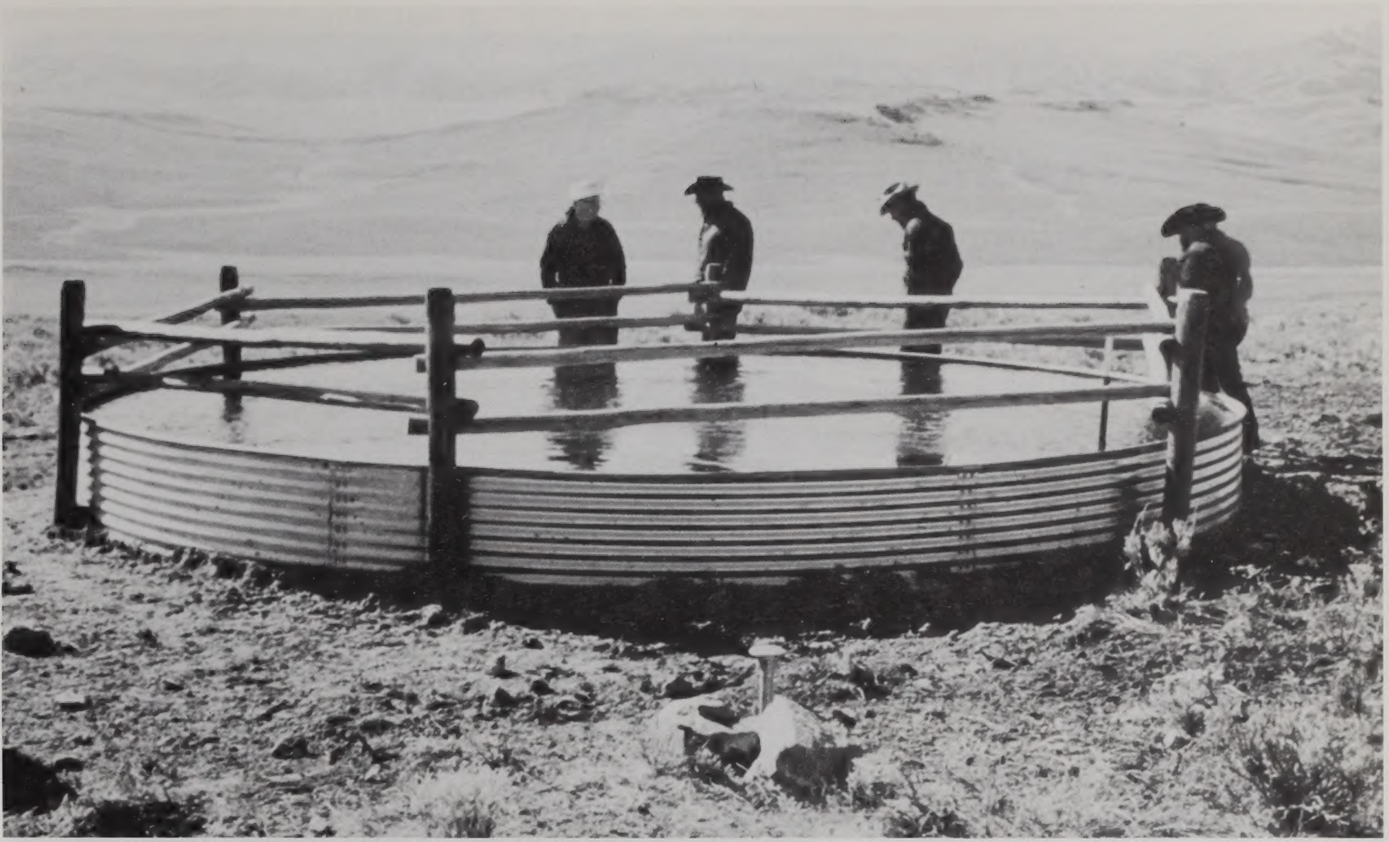
Development of 40 wells would be carried out under the proposed action. They would be powered by wind, propane, or electricity.



Ap5-3.

Ap5-4. Spring Development
To facilitate livestock distribution, there would be 61 spring developments under the proposed action.

Ap5-5. Mounded-over Pipeline
Water developments including nearly 79 miles of pipeline would aid in livestock distribution in the proposed action.



Ap5-6. Stockwater Tank

Livestock distribution would be improved under the proposed action with the installation of 189 stockwater tanks.

Ap5-7. Pasture after Sagebrush Spraying

Spraying of about 1,800 acres of sagebrush is recommended in the proposed action. Note the vigorous response of native grasses in this pasture two years after treatment.

Ap5-8. Pasture Treated by Plowing and Seeding

This sagebrush type was plowed and seeded to wheatgrass. Note the stand of grass two years after treatment. The proposed action would include plowing and seeding of 1,311 acres

APPENDIX 6:

RELATIONSHIPS WITH OTHER AGENCIES

The following agencies and individuals participate in the interdependence in land management brought about by complex patterns of landownership and regulatory responsibilities in the EIS area.

U.S. ENVIRONMENTAL PROTECTION AGENCY

Section 208 of the Federal Water Pollution Control Act (FWPCA) provides local governments with the necessary authority for the control of point and nonpoint sources of water pollution. The Montana Department of Health and Environmental Sciences has been designated by the Environmental Protection Agency as the state agency responsible for water pollution control planning. A cooperative agreement between the Montana State Office of the BLM and the State of Montana was signed in mid-1977. This agreement stipulates that the BLM will coordinate closely with the state during the land use planning process to ensure that the water quality objectives of the FWPCA are met where public lands are involved. In addition, the BLM will make resource information and expertise available to determine the effects of grazing systems on water quality. Thus, implementation of the proposed AMPs must be done in compliance with the guidelines established by the 208 planning process.

FOREST SERVICE

An agreement has been in effect since June 1973 between the Forest Service (U.S. Department of Agriculture) and the Bureau of Land Management. The agreement provides coordinated management of Beaverhead National Forest land and BLM lands located geographically within logical range management units. Range management plans will be jointly developed for range allotments that include both national forest and BLM lands. The range management plans will provide for the coordination of other land uses according to the multiple use plans or other applicable resource management plans of each agency.

Grazing use will be allowed, and management responsibility will be assigned to one of the respective agencies by each range management plan. Administrative control of each range allotment will begin upon joint approval of the range management plan and execution of the agreement. Table AP6-1 lists range allotments designated in the agreement for coordinated management.

FISH AND WILDLIFE SERVICE

The U.S. Fish and Wildlife Service (Department of the Interior) has the jurisdictional responsibility for enforcement of the Endangered Species Act and for management of the Red Rock Lakes National Wildlife Refuge. It also is responsible for migratory waterfowl and for predator control.

ADVISORY COUNCIL ON HISTORIC PRESERVATION (Council), HERITAGE CONSERVATION AND RECREATION SERVICE (HCRS), AND MONTANA STATE HISTORIC PRESERVATION OFFICER (SHPO)

Section 106 of the National Historic Preservation Act and Section 2b of Executive Order 11593 require consultation between the BLM and SHPO, HCRS, and the Council on decisions affecting all cultural properties that may be eligible for the National Register of Historic Places and which could be affected by any BLM action.

SOIL CONSERVATION SERVICE

The Soil Conservation Service (SCS) (U.S. Department of Agriculture) directs its efforts primarily toward stabilization of the soil and watershed resources and increasing the productivity of private land. In an effort to improve production on private land, the SCS has developed farm and ranch plan programs with such soil conservation projects as detention reservoirs and seeding. In ranch plan development, grazing systems are designed to use the private range effectively. In an integrated program, other rangelands such as public land must be considered. If the private ranch plan development should incorporate other uses on public land, conflicts would arise, particularly if use of public land would be adjusted. SCS assistance on private lands is accomplished primarily through five soil and water conservation districts in or adjacent to the EIS area.

Through the Agricultural Stabilization and Conservation Service (ASCS), the Soil Conservation Service provides assistance to landowners who want to improve their private rangelands. The ASCS provides cost-sharing on fences, water developments, and erosion control; the SCS provides technical support in planning, surveying, designing, and laying out each project. These

TABLE AP6-1
ALLOTMENTS DESIGNATED FOR COORDINATED MANAGEMENT BY BUREAU OF LAND MANAGEMENT AND FOREST SERVICE

Allotment Name	Coordination Action	Agency Responsible for Administrative Control
Badger Pass	Integrate BLM with NF	FS
Bear Canyon	Integrate BLM with NF	FS
Bear Creek	Integrate NF with BLM	BLM
South Black Canyon	Integrate NF with BLM	BLM
Deer Canyon	Integrate BLM with NF	FS
Dory Creek	Integrage BLM with NF	FS
Kate Creek	Integrate BLM with NF	FS
Lemhi Pass	Integrate BLM with NF	BLM
Meadow Creek	Integrate BLM with NF	FS
Morrison-Sweeney	Integrate BLM with NF	FS
Muddy Creek	Integrate NF with BLM	BLM
Pine Creek	Integrate BLM with NF	FS
Rattlesnake	Integrate BLM with NF	FS
West Medicine Lodge	Integrate BLM with NF	FS
Wigwam-Trail	Integrate BLM with NF	FS
Bachelor P. Combs	Integrate NF with BLM	BLM
Trail Creek	Integrate BLM with NF	FS
Willow Creek	Integrate BLM with NF	FS
Carl Ohs et al.	Integrate NF with BLM	BLM
Wolf-Moose	Integrate BLM with NF	FS
Mussigbrod	Integrate BLM with NF	FS
Twin Lakes	Integrate BLM with NF	FS
Papoose	Integrate BLM with NF	FS
Copp-Jackson	Integrate BLM with NF	FS
BLM Robb Creek	Integrate NF with BLM	FS
Rock-Moose	Integrate BLM with NF	FS

SOURCE: BLM, 1979.

activities and programs are confined to nonfederal lands and do not conflict with the proposed action.

NATIONAL PARK SERVICE

Biologists from the National Park Service (U.S. Department of the Interior) head the Interagency Grizzly Study Team based in Yellowstone National Park. Lands administered by the Bureau of Land Management fall within the interagency team study area. Since the study team is completing grizzly inventories in adjoining areas, a memorandum of understanding dated August 11, 1978, was prepared to facilitate grizzly inventories and habitat suitability assessment on public lands. The agreement provides for compensation of study team expenses. A final report on grizzly use and habitat suitability has been provided to the BLM.

SCIENCE AND EDUCATION ADMINISTRATION

There is a memorandum of understanding between the Science and Education Administration (SEA), the Forest Service, and the Bureau of Land Management relating to the use and administration of land within the Dubois Experimental Sheep Range in the Centennial Mountains, Montana. These lands were withdrawn under Executive Order 3767 for experimental sheep grazing.

MONTANA DEPARTMENT OF FISH, WILDLIFE, AND PARKS

The Montana Department of Fish, Wildlife, and Parks (formerly the Department of Fish and Game) is responsible for a wide variety of fish, wildlife, and recreation-related programs that directly affect the management of public lands. These programs include the protection and propagation of both game and nongame fish and wildlife and the setting of seasons and limits for taking game species. In addition, the department is the state agency in charge of outdoor recreation.

Through a master memorandum of understanding dated November 1, 1977, the BLM and the Department of Fish, Wildlife, and Parks have agreed to work for the common purpose of maintenance, improvement, and management of the wildlife resources found in the state of Montana and the habitat necessary to the propagation, protection, and survival of those resources. Further, the two agencies have agreed to cooperate in the inventory, research, and management of wildlife and wildlife habitat relationships on or adjacent to the public lands as necessary, so that the welfare and proper management of wildlife species and their habitat will be ensured.

The two agencies have agreed to coordinate and exchange information on such items as reservation of forage for big game animals, livestock control fences, alteration of vegetation by chemical or mechanical means, water development, and the joint development of habitat management plans. Therefore, such items as the development of range improvements and vegetation manipulation must be closely coordinated with the Montana Department of Fish, Wildlife, and Parks.

A memorandum of understanding was completed between the Montana Department of Fish, Wildlife, and Parks, the Forest Service (Beaverhead and Deerlodge National Forests), and the BLM in April 1978. The two national forests and the BLM administer large portions of the department's management area 319. This area is of special interest because of its proximity to Butte and the intensive hunting pressure it supports. The mutual intent of the agencies is to achieve coordinated management of the wildlife resources in area 319.

MONTANA DEPARTMENT OF STATE LANDS

The AMPs in the proposed action contain varying amounts of state land. Approximately 7 percent of the EIS study area is composed of state land, the largest part of which is managed by the Montana Department of State Lands. State land, which often is intermingled with BLM land, is generally leased to individual livestock operators or cooperative state grazing districts on a long-term basis. Coordination with the Montana Department of State Lands is ongoing as the department becomes increasingly involved in management planning and the development of range improvements.

COOPERATIVE STATE GRAZING DISTRICTS

Cooperative state grazing districts are nonprofit cooperative associations of livestock operators organized under the 1934 Montana Grass Conservation Act. They are specifically empowered to lease or purchase grazing lands, to develop and manage district-controlled lands, and to allocate grazing preferences among members and nonmembers. The Montana Department of Natural Resources and Conservation is the state agency responsible for administration of cooperative state grazing district activities.

Districts are organized to provide for the conservation, protection, restoration, and proper utilization of the state's forage resource, to provide a means for government agency cooperation in dealing with federally owned lands, to provide for unification of grazing administration where ownership is diverse and lands are intermingled, and to provide for stabilization of the livestock industry.

The Waterloo Cooperative State Grazing District is the only grazing district in the EIS study area. This grazing district in northwestern Madison County allocates approximately 143 AUMs among its members. No existing or proposed AMPs are on lands under its administration.

OLD WEST REGIONAL COMMISSION

The Old West Regional Commission is a federal-state partnership whose function is to stimulate programs for orderly growth and development in the states of Montana, Nebraska, North Dakota, South Dakota, and Wyoming. Established in 1972, under the Public Works and Economic Development Act of 1965, it is one of seven such commissions in the United States.

In 1977, the Old West Regional Commission instituted a two-year "Grazing Assistance and Evaluation Program" grant with the Montana Public Lands Council, a public lands users' organization formed by the Montana Stockgrowers Association. Because the BLM operates under tight time constraints in preparation of allotment management plans and environmental impact statements, the Montana Public Lands Council was organized to facilitate the exchange of information between public land users and the BLM and to evaluate the various techniques, procedures, and economics of the allotment management plans.

The objectives of the Grazing Assistance and Evaluation Program are:

> To make an economic overview of the implications of the bureau's actions on local communities and to assess the economic effects of BLM planning decisions on the economy of states in the Old West Region.
>
> To perform technical monitoring of procedures used by the BLM to make sure they are adequate to reflect public interest.
>
> To communicate with users as to the BLM's decisions and the effects of those decisions on the user's operations.
>
> To develop avenues of communication between the BLM, users, and an Old West-sponsored team.

PRIVATE GRAZING ASSOCIATIONS

Ten private grazing associations exist within the EIS area. These associations are chartered under the laws of the state of Montana, and most of them were formed with monies made available through the Farmers Home Administration. Grazing permits or licenses on allotments are held by individual members of the association; however, private grazing associations facilitate BLM administration of common allotments where numerous permittees are involved. In several instances, base property has been purchased and is used by all association members. The following are the grazing associations in the study area:

Moose Camp Creek Stock Association
Wise River Stock Association
Bannack Grazing Association
Alaska Basin Grazing Association
Big Hole Grazing Association
Garden Creek Stock Association
Moorse Creek Grazing Association
Madison Valley Holding Pasture Association
Robb Creek Cattle Association
Snowline Grazing Association

LIMA RESERVOIR WATER USERS IRRIGATION COMPANY

The Lima Reservoir Water Users Irrigation Company and the BLM entered into a cooperative agreement in 1977 to provide for the management and development of public lands in and adjacent to Lima Reservoir. The purposes of the agreement are to improve and enhance aquatic and terrestrial wildlife habitat, to improve water quality for indigenous waterfowl species, and to improve grazing for ungulates, all without decreasing the water storage capabilities of the reservoir.

APPENDIX 7:
RIPARIAN SURVEY METHODOLOGY AND RATING CRITERIA

A detailed description of riparian methodology is available upon request from the Dillon Resource Area Office. This brief description is for the general orientation of the reader only.

Riparian surveys included data on bank erosion, bank rock content, and the quantity and vigor of palatable woody riparian species. A high correlation between basal diameter of woody species and their age was observed (table AP7-A). Basal diameter classes of 1 to 10 mm., 11 to 15 mm., and greater than 15 mm. correspond to age classes of 1 to 4 years, 5 to 10 years, and 10 years plus for willow.

Eight riparian reaches judged to be in good or excellent condition were used as the basis for rating surveyed reaches (table AP7-B). The 95 percent confidence interval of mean characteristics for these good condition reaches was used to establish rating criteria shown in table AP7-C. Canopy coverage of palatable woody species was weighted three times greater than that of other survey parameters. In this way, reaches with high canopy coverage rate higher than those with lower canopies but indentical vigor characteristics. All surveyed riparian reaches were rated using these criteria.

TABLE AP7-A

CORRELATION BETWEEN BASAL DIAMETER AND AGE FOR WILLOW, ASPEN, AND BIRCH

AGE	N	DIAMETER MEAN (MM)	C.I. (95%)	CORRELATION COEFFICIENT (r)
WILLOW				
2	6	7.83	± 1.32	AGE = X & DIAMETER = Y
3	17	8.94	± 1.14	
4	13	8.61	± 2.02	
5	10	12.60	± 2.59	
6	8	13.62	± 4.53	
7	11	13.81	± 4.97	
8	9	19.00	± 8.15	
9	11	18.27	± 4.67	
10	4	17.25	± 7.41	
11	2	24.00	± 4.24	
	91			r = .9503
ASPEN				
5	8	9.63	± 2.60	
6	7	13.28	± 2.87	
7	6	13.80	± 2.85	
8	5	20.60	±11.08	
9	3	22.00	± 3.00	
10	4	22.25	± 6.40	
11	2	24.00	± 4.25	
	35			r = .9576
BIRCH				
4	8	9.62	± 3.29	
5	5	13.40	± 3.36	
6	6	11.33	± 2.65	
7	2	16.00	± 2.82	
8	3	14.00	± 6.24	
9	2	17.00	± 7.07	
11	4	19.50	± 8.42	
12	3	18.66	± 4.04	
19	2	52.50	±34.64	
	35			r = .9242

SOURCE: BLM, 1979

TABLE AP7-B

CHARACTERISTICS OF GOOD CONDITION REACHES USED FOR ESTABLISHING RATING CRITERIA

Reach Numbers	Normal (%)	Hedged (%)	Decadent (%)	Dead (%)	Basal Stem Diameter in Millimeters			Canopy (%)	Bank Erosion (%)
					1-10	11-15	> 15		
R-1	67	19	7	8	12	15	73	73	4
R-2	68	23	4	4	19	14	68	75	12
R-3	58	33	4	4	3	9	87	56	12
R-4	77	16	5	2	14	15	71	70	5
R-9	72	29	0	0	23	24	54	69	15
R-15	73	16	7	5	3	11	87	76	4
R-17	82	18	1	0	23	27	50	50	4
R-12	71	10	8	11	2	10	88	70	20
(Mean)	$\bar{x}$ 71	$\bar{x}$ 20.5	$\bar{x}$ 4.5	$\bar{x}$ 4.2	$\bar{x}$ 12.4	$\bar{x}$ 15.6	$\bar{x}$ 72.2	$\bar{x}$ 67.4	$\bar{x}$ 9.5
(Confidence interval)	95% ±6.9	95% ±7.3	95% ±2.8	95% ±3.7	95% ±8.7	95% ±6.4	95% ±14.5	95% ±8.5	95% ±5.6

SOURCE: BLM, 1979.

TABLE AP7-C

RIPARIAN RATING CRITERIA

NORM	>78%	3
	64-78%	2
	50-63%	1
	<50%	0
HEDGED	<14%	3
	14-28%	2
	29-50%	1
	>50%	0
DEAD & DECADENT	<2%	3
	2-16%	2
	17-24%	1
	25-30%	0
	>30%	U
CANOPY	>76%	9
	59-76%	6
	30-58%	3
	20-29%	1
	<20%	0

	1-10MM	11-15MM	15MM	
REPROD.	>21%	>21%	<58%	3
	4-21%	9-21%	58-87%	2
	1-4%	4-9%	87-96%	1
	<1%	<4%	>96%	0

EROSION	<4%	3
	4-15%	2
	16-30%	1
	31-39%	0
	≥40%	U

Instructions:
Rate each parameter as shown and add the cumulative score. In a few cases age classes will fall into different score brackets; score reproduction in the bracket in which two of the three categories fall. Any reach with more than 30% dead and decadent or 40% or more bank erosion routinely rates unsatisfactory (u) irrespective of total score. The total score is a good indicator to determine if the "problem" is on-site or off site in origin.

Cumulative Score

Excellent = 19-24

Good = 10-18

Fair = 7- 9

Poor = <7

SOURCE: BLM, 1979.

APPENDIX 8: CHANGES IN CURRENT PERMITTED USE FROM EXISTING TO PROPOSED ALLOTMENTS

TABLE 8A: Changes in Current Permitted Use

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allotment Number	Allotment Name	Number of Operators	Current Permitted Use (AUMs)	Existing Season of Use	Allotment Number	Allotment Name	Number of Operators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Prescribed Burn (acres)[b]	Sagebrush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximization (AUMs)
Existing AMPs														
0001	Pine Creek	1	405	6/1-10/15	0001	Pine Creek	1	405	405	6/1-10/15	0	0	0	457
0004	Selway	1	59	7/1-7/30; 8/1-9/15	0004	Selway	1	59	118	7/1-7/30; 8/1-9/15	0	0	0	143
0005*	Stonehouse	1	1,951	5/10-6/25; 11/25-1/10										
0006*	Stonehouse	1	34	5/10-6/25; 11/25-1/10	0005	Stonehouse	1	1,985	1,985	5/10-6/25; 11/25-1/10	0	0	0	2,342
0007*	Armstead-Upper Sage	1	895	5/15-12/31										
0008*	Armstead-Upper Sage	1	730	5/15-12/31	0007	Armstead-Upper Sage	1	1,625	1,890	5/15-12/31	0	0	0	1,771
0011	Mosman	1	425	5/15-10/15	0011	Mosman	1	425	514	5/15-10/15	0	0	0	570
0012*	Matador	1	5,000	4/15-12/31	0012	Matador	1	4,906	4,906	4/15-12/31	0	0	0	9,000
0013*	Gallagher Mt.	1	4,524	5/1-10/20	0013	Gallagher Mt.	1	4,500	4,177	5/1-10/20	0	0	0	4,599
0014	Barretts	2	208	5/10-8/9; 8/10-11/24	0014	Barretts	2	208	208	5/10-8/9; 8/10-11/24	0	0	0	274
0015	Bannack	1	508	5/1-6/29	0015	Bannack	1	508	511	5/1-6/29	0	0	0	744
0017	Coyote Flats	1	678	5/15-6/14	0017	Coyote Flats	1	678	400	5/15-6/14	0	0	0	440
0018*	Bear Creek	1	123	7/1-8/15; 8/15-9/30										
0036*	Bear Creek	1	248	7/1-8/15; 8/15-9/30	0018	Bear Creek	2	371	371	7/1-8/15; 8/15-9/30	0	0	0	396
0019	Rape Creek	2	1,396	6/1-6/30; 9/1-9/30	0019	Rape Creek	2	1,396	906	6/1-6/30; 9/1-9/30	0	0	0	1,230
0027	Tallent	1	714	6/5-12/1	0027	Tallent	1	714	465	6/5-12/1	0	0	0	548

0037	Baldy Mtn.	1	1,303	5/10-10/15	0037	Baldy Mtn.	1	1,303	1,303	5/10-10/15	0	0	0	1,420
0039	Muddy Creek	1	1,400	6/15-11/5	0039	Muddy Creek	1	1,400	1,649	6/15-11/5	0	0	0	1,698
0040*	Price Creek	1	821	7/1-12/15	0040	Price Creek	1	809	1,273	7/1-12/15	0	0	0	1,603
0042*	Meadow Creek	2	224	6/16-9/30	0042	Meadow Creek	2	184	184	6/16-9/30	0	0	0	214
0116*	Conover	1	10	7/15-9/15										
0117*	Conover	1	276	7/15-9/15	0116	Conover	1	286	286	7/15-9/15	0	0	0	380
0167*	Robb Creek	9	596	8/1-8/30	0167	Robb Creek	9	545	467	8/1-8/30	0	0	0	459
0268	Iron Rod	3	569	5/16-10/15	0268	Iron Rod	3	569	569	5/16-10/15	2,686	5,685	0	2,226
0301	Copp-Jackson	1	197	6/1-10/15	0301	Copp-Jackson	1	197	197	6/1-10/15	0	0	0	204
0303	Moose Creek	1	619	5/21-11/30	0303	Moose Creek	1	619	680	5/21-11/30	0	0	0	696
0317	Greenstone	2	216	8/15-10/20	0317	Greenstone	2	216	216	8/15-10/20	0	0	0	216
0318	Jerry Creek	4	856	6/1-6/30	0318	Jerry Creek	4	856	856	6/1-6/30	0	0	0	907
0324	Rochester Basin	2	1,938	6/1-10/15	0324	Rochester Basin	2	1,938	1,938	6/1-10/15	0	0	0	2,170
0749	Deer Canyon	1	30	7/1-10/15	0749	Deer Canyon	1	30	30	7/1-10/15	0	0	0	32
Subtotal, Existing AMPs			26,953					26,732	26,504		2,686	5,685	0	34,739
Revised AMPs														
0002*	Clark Canyon	1	1,244	1/1-12/31										
0003*	Clark Canyon		539	1/1-12/31	0002	Clark Canyon	1	1,783	1,783	1/1-12/31	0	0	0	2,143
0009	Junction Seeding	1	362	6/1-7/14	0009	Junction Seeding	1	362	272	6/1-7/14	0	0	0	355
0010	Crooked Creek	1	485	5/1-2/29	0010	Crooked Creek	1	485	373	5/1-2/29	0	0	0	508
0016	Chinatown	1	662	5/20-7/15	0016	Chinatown	1	662	662	5/20-7/15	0	0	0	725
0020	N. Black Canyon	1	1,084	6/1-9/30	0020	N. Black Canyon	1	1,084	1,139	6/1-9/30	0	0	0	1,173
[illegible]	Leadore	1	200	11/1-12/31										
[illegible]	Mansfield Seeding		205	5/14-6/13	0021	Leadman	1	395	395	5/14-6/13	0	505	0	1,161

*Refer to table 8B for allotment divisions. **Not adjudicated to any operator; however, operators may apply for it. ***This is one AMP; however, it is being handled as two.

TABLE 8A, page 3

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres)[b]	Sage-brush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximi-zation (AUMs)
0022	Dixon Mt.	1	291	6/1-12/31	0022	Dixon Mt.	1	291	260	6/1-12/31	0	0	0	301
0025	Trail Creek	1	34	6/1-6/15	0025	Trail Creek	1	34	34	6/1-6/15	0	360	353	106
0026	Anderson Field	1	1,040	5/1-1/28	0026	Anderson Field	1	1,040	1,040	5/1-1/28	0	0	0	1,103
0028	Scudder Creek	1	221	5/21-6/20	0028	Scudder Creek	1	221	221	5/21-6/20	0	0	0	236
0029*	Snowline S,E,W	33	2,658	7/1-2/29	0029	Snowline	33	2,019	1,989	7/1-2/29	0	0	0	2,208
0030	Reservoir Creek	7	1,658	5/15-6/30; 8/15-9/30	0030	Reservoir Creek	7	1,658	1,375	5/15-6/30 8/15-9/30	0	0	0	2,026
0031*	PHW	3	1,247	5/15-8/24	0031	PHW	3	1,238	1,116	5/15-8/24	0	3,600	3,600	3,091
0032	Exchange	Varied**	406	5/15-9/30	0032	Exchange		406	406	5/15-9/30	0	0	831	457
0033	Cross	Varied**	420	6/1-10/30	0033	Cross		420	420	6/1-10/30	0	0	(831) 3,671	1,004
0034*	Red Mine	1	472	6/1-9/25	0034	Red Mine	1	470	470	6/1-9/25	0	0	0	537
0035	Brenner Seeding	1	417	6/1-6/30; 9/1-9/30	0035	Brenner Seeding	1	417	417	6/1-6/30; 9/1-9/30	0	0	0	440
0038	Buck Creek	1	1,118	4/15-6/25	0038	Buck Creek	1	1,118	1,118	4/15-6/25	0	0	0	1,118
0041	Rock Creek	1	47	5/20-7/1	0041	Rock Creek	1	47	140	5/20-7/1	0	0	0	144
0308* 0309*	Camp Creek Camp Creek	7	4,181	5/21-10/1 5/21-10/1	0308	Camp Creek	7	4,181	2,859	5/21-10/1	0	0	0	3,768
0335	Lelow	1	227	6/1-6/30; 8/6-9/30	0335	Lelow Basin	1	227	176	6/1-6/30; 8/6-9/30	(660) 660	0	0	338
0471*	Sweetwater	1	2,095	5/20-10/19	0471	Sweetwater	1	2,057	1,281	5/20-10/19	0	0	0	1,505
Subtotal, Revised AMPs			21,313					20,615	17,946		(660) 660	4,465	(831) 8,455	24,447

Proposed AMPs

0101	Cow Creek & Cabin Creek	1	504	8/1-10/10	0101	Little Divide	1	504	504	5/15-9/30	0	0	0	2,056
0102*	Cabin Creek	1	342	6/1-8/30	***0102 ***0102	Cabin Creek Morrison-Sweeney	1	342	310 32	6/15-9/15 6/15-9/15	0	0 400	0	346 183
0104	Mariner Ballard	1	174	8/16-11/16	0104	Twin Lakes	1	174	53	7/1-9/30	(300) 387	0	0	81
0107*	Cabin Creek - Sheep Creek	1	770	5/15-12/31	0107	Porcupine Canyon	1	458	458	6/1-6/30; 10/1-12/31	0	0	0	518
0108*	Hansen	2	2,673	3/1-2/28	0108	Hansen Creek	2	2,571	2,571	4/1-7/1; 11/1-2/1; 5/16-10/15	0	0	0	3,590
0109*	Buhler	1	129	6/1-11/30	0109	Weldon Buhler	2	45	45	6/1-6/21; 11/1-11/11	0	0	0	77
0110	Pipe Organ Rock	1	84	5/15-11/14	0110	Pipe Organ Rock	1	84	84	5/15-11/30	0	0	0	259
0113	Blacktail	1	699	9/1-10/20	0113	Red Canyon	1	699	351	5/10-6/30; 8/10-9/22	0	0	0	400
0114	Bill Hill Creek	1	240	6/1-7/15; 12/16-1/31	0114	Bill Hill Creek	1	240	220	6/1-7/15; 12/1-2/1	0	0	0	297
0118	Gransbery	1	91	7/1-1/15	0118	Antelope Butte	1	91	91	7/1-1/15	0	0	0	99
0119	Pass Creek	1	690	6/15-10/31	0119	Pass Creek	1	690	659	7/1-10/15	0	0	0	797
0120* 0121*	Carroll-Holland Frenchman-Holland	1 1	275 745	11/15-12/31 9/1-12/31	0120	Frenchie-Carroll-Holland	1	989	667	11/15-12/31	0	0	0	769
0122*	Holland Ranch Co.	1	1,127	5/15-11/14	0122	Taylor Creek-Buffalo Creek	1	947	690	5/30-6/25; 9/15-10/11	0	0	5,528	2,098
0123*	F. & E. Huntsman	1	345	5/6-9/30	0123	Huntsman	1	331	331	5/6-9/30	0	0	0	792
0124*	Evan Huntsman	1	783	5/6-9/30	0124	Cedar Creek	1	540	299	5/20-6/30; 9/15-11/1	(700) 1,500	0	0	551
0126	Hildreth Individual	1	869	5/15-8/30	0126	Ellis Peak	1	869	464	7/1-9/30	0	0	0	552
0129*	Detton	1	708	5/15-6/25; 11/1-12/31	0129	Big Spring Gulch	1	658	658	5/15-6/25; 11/1-12/31	0	0	0	1,090
0130	S. Black Canyon	2	819	6/16-9/30	0130	S. Black Canyon	2	819	297	6/16-9/30	0	0	0	365

*Refer to table 8B for allotment divisions. **Not adjudicated to any operator; however, operators may apply for it. ***This is one AMP; however, it is being handled as two.

TABLE 8A, page 5

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs)^a	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres)^b	Sage-brush Spray (acres)^b	Plowing and Seeding (acres)^b	Livestock Forage Maximi-zation (AUMs)
0131* 0133*	David Hulet Hulet	1 1	236 187	5/15-10/15 5/1-10/31	0131	Frying Pan	1	423	336	5/10-10/31	0	0	(400) 400	436
0135*	L. Hayden	1	176	3/1-7/19; 10/12-2/28	0135	Big Hole Road	1	167	167	5/20-6/20; 11/1-4/30	0	0	0	314
0136*	Knox	1	1,240	3/1-11/31	0136	Knox	1	1,166	959	6/1-11/30	0	0	0	1,126
0137	Bull-Heifer Creek	1	62	7/15-9/30	0137	Bull-Heifer Creek	1	62	62	5/15-7/15; 8/15-10/30	(110) 200	0	0	258
0138*	Kent	1	375	6/15-10/31	0138	Kent Price Canyon	1	364	318	5/10-10/31	0	0	0	346
0143	Mayberry	1	2,375	3/1-2/28	0143	Mayberry	1	2,375	2,375	5/5-7/1; 11/1-3/31; 5/20-10/15	0	0	0	3,658
0145*	Shesser	1	98	7/1-9/30	0145	Lemhi Pass	1	78	78	7/15-9/30	0	0	0	159
0147*	Matador	1	1,184	3/1-11/30	0147	Matador-Blacktail	1	308	176	7/1-10/15	0	0	0	199
0148* 0150* 0149*	L.C. Livestock Rocky Hills A & C Rocky Hills-BDEF,SGC	1 1 1	129 2,005 170	5/1-6/20 5/1-6/15; 10/1-11/30 5/15-11/14	0148	Rocky Hills	1	1,866	1,609	5/1-6/20	(530) 8,300	0	0	4,166
0150*	Rocky Hills A & C				0150	Radio-TV Tower	1	415	388	8/20-11/11	0	0	0	423
0151* 0154* 0747* 0750*	Centennial Matador Long Creek Lower Ritchie Unit Lower Ritchie-SGC	1 1 1 1	853 763 69 31	11/1-11/30 7/8-10/15 5/15-11/14 5/15-11/14	0151	Lima Reservoir	2	1,161	1,161	6/16-7/1; 8/10-11/30	0	0	0	1,583
0152* 0154*	3-Centennial-Mat. Long Creek	1 1	1,048	7/1-10/9	0152	Long Creek	1	1,603	1,603	5/1-12/15	0	0	0	3,703
0156	L Diamond-Center Ridge	1	156	5/1-5/31	0156	Maiden Creek	1	156	89	6/10-7/31; 9/10-10/10	0	0	0	95

0158	P. Martinell	1	1,101	6/1-10/30	0158	Simpson Creek	1	1,101	1,101	6/1-9/20	0	2,990	0	2,785
0159*	L. Martinell	1	224	5/15-11/14	0159	Shineberger	1	211	211	7/15-9/30	0	0	0	231
0160	Burns Mtn.	1	176	4/20-5/19	0160	Burns Mtn.	1	176	153	5/1-6/1; 10/15-12/6	0	0	0	153
0161	Lakner	1	56	10/1-2/29	0161	Buzztail	1	56	56	10/1-2/28	0	0	0	104
0165	Coyote Creek	1	275	6/25-7/24	0165	Coyote Creek	1	275	142	6/1-8/30	0	0	0	375
0168*	Remely	1	501	10/1-1/1	0168	Timber Butte	1	501	501	9/15-9/30	0	0	0	597
0169	Saier Individual-SGC	1	108	5/15-11/14	0169	Saier Individual	1	102	102	9/1-10/1	0	0	0	152
0171*	J & M Rebich	1	162	6/25-10/15	0171	Henneberry Ridge	1	153	153	7/25-10/15	0	0	0	180
0172	Fish Creek	1	557	6/16-10/25	0172	Ruby Dell	1	557	557	6/25-7/16; 10/1-10/25	0	1,600	0	3,279
0173*	J & E Rebich	1	344	6/1-10/31	0173	Gallagher Creek	1	110	63	10/1-10/30	0	0	0	70
0177*	Moss	1	1,130	5/1-10/31; 12/1-2/28	0177	Phalarope	1	1,028	1,028	5/1-10/31	0	0	0	1,907
0179*	Wilson Lease	1	332	5/15-8/31; 10/11-11/10										
0713*	Clyde Smith Co.	1	195	6/1-10/31	0179	Peet Rock	1	527	236	6/15-7/10; 8/15-10/31	0	570	0	418
0182*	Meine	1	115	5/15-2/28										
0333*	Meine Ind. SGC	1	21	5/15-11/14	0182	Kennison Spring	1	136	136	6/1-6/15; 10/1-2/28	0	360	0	417
0192*	Clark Canyon	1	96	7/1-7/31										
0709*	Wellborn Ind.	1	87	5/1-6/31	0192	Shoshone Cove	1	183	183	5/15-9/15	0	220	0	322
0193*	Bell Canyon	1	1,050	5/15-11/14										
0195*	Williams A.	1	200	5/10-6/9	0193	William Bell Canyon	1	1,250	1,167	5/20-10/15	0	0	0	1,295
0197	Romda	1	274	6/1-10/30	0197	Bell Ranch	1	274	274	6/1-10/30	0	0	0	350
0199*	Rody	1	251	6/1-9/30	0199	Rody	1	236	236	3/1-2/28	0	0	0	372
0236	Dry Boulder	1	33	7/1-9/30	0236	Dry Boulder	1	33	25	6/1-10/1	(52) 52	0	0	28

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Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres)[b]	Sage-brush Spray (acres)[b]	Plowing and Seeding[b] (acres)	Livestock Forage Maximi-zation (AUMs)
0107*	Cabin Creek and Sheep Creek				0269	Four Eyes	1	292	292	5/15-11/30	0	0	0	262
0714*	Wellborn	1	619	6/1-10/31	0270	Lima Peaks	1	236	236	6/16-10/15	0	0	0	517
0302	Lazy J.V.	1	123	5/16-6/30	0302	Bradley	1	123	36	6/1-7/1; 10/1-10/15	0	(300) 750	0	85
0305*	Burk A&B	1	87	5/16-6/30										
0344*	Rieber Allot.	1	82	5/16-6/30	0305	Burk-Rieber	1	154	73	6/1-6/30; 10/1-10/30	0	1,000	0	270
0311	Glendale Common	4	397	6/1-6/30	0311	Glendale Common	4	397	210	6/1-6/30 10/1-10/15	(1,200) 1,200	0	0	288
0312	Maiden Rock	1	27	5/15-6/15	0312	Maiden Rock	1	27	27	5/15-7/1; 10/1-10/30	0	0	0	77
0313*	Nelson	1	132	10/2-10/15	0313	Nelson	1	125	95	10/2-10/17	0	0	0	105
0314	Garrison	1	1,030	5/1-12/15	0314	Garrison	1	1,030	500	6/1-9/22	1,710	0	0	695
0315	Richards	1	130	5/16-6/30	0315	Richards	1	130	116	6/1-6/30; 10/1-10/30	0	0	0	123
0316	Redfern	7	386	7/1-10/15	0316	Redfern	7	386	93	7/1-10/10	0	0	0	126
0319	Gneiting	1	120	6/16-9/15	0319	Gneiting	1	120	120	6/15-10/15	0	0	0	229
0320*	Browns Gulch	1	86	5/15-6/30										
0321*	Cherry Creek	1	88	5/15-6/15	0320	Cherry Creek/ Browns Gulch	1	174	174	6/1-6/30; 9/15-10/15	0	3,300	0	665
0322	Lost Creek	1	117	5/10-6/10	0322	Lost Creek	1	117	56	5/10-7/10	0	0	0	61
0330*	Block Mtn.	2	1,148	5/1-7/15; 8/15-9/14										
0323*	McCartney Mtn.	1	1,980	5/1-7/15	0323	McCartney Mtn.	2	3,128	2,349	5/1-7/15; 8/15-9/14	0	0	0	2,863
0326	Tungsten Mill	1	145	5/6-6/20	0326	Tungsten Mill	1	145	145	5/18-6/20; 10/1-10/15	0	0	0	256

0327*	Devil's Dancehall	1	249	5/1-5/31	0327	Devil's Dancehall	1	154	68	4/15-6/10	0	0	(100) 100	125
0328*	Lazy AU;Willow Cr.	1	217	5/6-6/20; 10/1-10/5										
0329*	Sisterson	1	73	5/6-6/20; 10/16-11/15	0328	Birch Creek- Willow Creek	1	290	290	5/15-7/1; 10/1-10/30	0	4,000	0	1,232
0332	Skeeters	1	41	6/1-7/1	0332	Skeeters	1	41	41	6/1-6/15; 12/1-12/15	0	0	0	98
0337	Seven Springs	1	280	5/28-6/30	0337	Seven Springs- Big Hole	1	280	159	6/1-7/1; 9/15-10/15	0	2,500	0	465
0341*	Deno Creek	1	119	6/1-6/30	0341	Deno Creek	1	109	56	6/1-7/10; 9/15-10/30	430	0	0	148
0342	Limekiln	1	124	5/22-7/7	0342	Limekiln	1	124	62	5/20-7/10; 10/1-11/1	(150) 285	0	0	114
0343	Quartz Hill	1	78	7/1-7/31	0343	Quartz Hill	1	78	55	6/1-6/30	(70) 360	0	0	166
0345	Logan Smith	1	150	10/16-11/15	0345	Logan Smith	1	150	150	10/16-11/15	(50) 117	0	0	630
0347	Twin Adams	1	72	5/4-6/4	0347	Twin Adams	1	72	72	4/15-5/15; 8/15-9/15	0	0	0	164
0348	Georgia Gulch	1	249	6/1-9/30	0348	Georgia Gulch	1	249	172	6/15-9/14	512	0	0	411
0351	Alder Creek	1	143	6/15-9/25	0351	Alder Creek	1	143	119	6/1-7/15; 10/1-10/30	0	0	0	153
0353*	Rochester Bsn.SCG	1	587	6/1-2/28	0353	Lower Rochester Basin	1	205	146	4/15-6/15	0	0	0	162
0354	Seyler Pasture	1	672	5/10-5/31; 10/16-12/15	0354	Seyler Pasture	1	672	672	5/10-5/31; 10/16-12/15	(25) 130	0	0	924
0377	Armstrong	1	80	5/15-11/14	0377	Sparrow Ditch	1	80	80	6/15-8/14	0	0	0	87
0385	Brooke	1	79	7/1-8/31	0385	Windy Pass	1	79	42	7/1-8/31	0	0	0	45
0404	J.C. Jackson	1	92	6/1-11/30	0404	Preacher Creek	1	92	92	6/25-11/1	0	0	0	107
0407	Revenue	1	376	6/1-11/1	0407	Revenue Common	1	376	306	6/9-10/15	0	0	0	343
0421*	OHS	1	294	5/15-10/31	0421	Strawberry Ridge	1	291	230	7/1-10/31	0	0	0	262
0428*	Rice Ranches	1	586	5/15-12/1	0428	Fletcher-Moore	1	305	213	6/15-9/14	0	0	0	241

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TABLE 8A, page 9

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allotment Number	Allotment Name	Number of Operators	Current Permitted Use (AUMs)	Existing Season of Use	Allotment Number	Allotment Name	Number of Operators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Prescribed Burn (acres)[b]	Sagebrush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximization (AUMs)
0433	Walter Shaw	1	74	4/20-7/20	0433	Shaw Basin	1	74	74	6/15-9/15	0	0	0	106
0443	Point of Rocks	1	182	6/15-10/15	0443	Kountz	1	182	182	6/15-10/14	0	438	0	280
0447	Pete Jackson	1	177	7/1-9/30	0447	Wallace Peak	1	177	100	7/1-10/1	(116) 116	0	0	135
0456	Ballard	1	177	6/15-9/30	0456	Ballard	1	177	127	6/15-9/30	(100) 340	0	0	181
0459	Bryan	1	223	8/1-10/15	0459	Bryan	1	223	122	8/1-10/15	0	0	0	140
0468	Granite	1	223	6/1-9/30	0468	Granite Creek	1	223	75	6/1-9/30	544	0	0	171
0469*	Belmont	1	1,365	3/1-2/28	0469	Belmont	1	1,037	677	5/1-10/15; 2/15-2/28	(230) 384	(1,500) 1,811	0	831
0475	Shaffer	1	98	5/15-11/14	0475	Mill Gulch	1	98	98	6/1-10/25	340	0	0	159
0479*	Garden Creek	8	1,617	5/15-10/31	0479	Garden Creek	8	1,407	857	7/1-10/15	(900) 1,800	0	0	1,183
0481	Brandon Pasture	4	98	5/16-5/31	0481	Brandon Pasture	3	98	51	6/1-6/16	(75) 197	0	0	116
0482*	Gilbert Sheep	1	41	5/15-11/14										
0483*	North Fork	1	181	5/1-6/10; 11/1-12/31	0482	North Fork	1	222	222	5/1-6/10; 11/1-12/15	0	0	0	288
0466*	Bachelor	1	673	6/15-10/14										
0457*	Bar 7	1	485	4/15-1/15										
0485*	Granite-Moore	1	207	7/1-10/15										
0473*	Blue Lake	2	523	6/20-11/1	0485	Axolotl Lakes	5	1,065	518	7/1-10/1	0	0	0	729
0486*	Hogback	1	230	5/1-2/10	0486	Hogback	1	74	74	4/1-6/1	0	0	0	144
0488*	Virginia City	1	937	6/1-9/30	0488	Virginia City	1	487	197	6/15-9/14	0	0	0	204
0484*	Quaking Aspen	1	57	5/15-11/14										
0489*	Benchmark	1	277	6/15-10/14	0489	Benchmark	1	334	165	5/25-11/30	(300) 741	0	0	272
0490	Barton Gulch	1	64	5/15-11/14	0490	Barton Gulch	1	64	52	6/15-9/1	0	0	0	56

0497	Davey Creek	2	338	6/1-10/15	0497	Davey Creek	2	338	318	6/1-10/1	(200) 397	0	0	397
0498*	Stone Creek	1	438	7/16-10/31	0498	Stone Creek	1	438	297	7/1-10/15	(100) 223	0	0	380
0499*	Idaho Jack	1	475	7/1-9/31	0499	Idaho Jack	1	413	247	7/10-9/27	0	0	0	262
0501*	Wisconsin Creek	1	205	5/15-11/14	0501	Wisconsin Creek	1	201	170	8/15-10/14	0	0	0	209
0507	California	2	278	6/15-9/30	0507	California Cr.	2	278	181	6/15-9/30	0	0	0	245
0510	Rattlesnake	1	128	5/1-6/15	0510	Rattlesnake	1	128	128	5/15-6/30	0	0	0	225
0512	Bell Rock	1	1,077	3/1-2/28	0512	Rock Creek	1	1,077	810	3/1-4/30; 6/1-9/30; 12/1-2/28	0	0	0	1,029
0516*	Spring Brook	1	1,873	5/1-12/15	0516	Spring Brook	1	1,461	933	5/1-11/1	0	0	0	1,393
0518*	Sweetwater Basin	1	374	3/1-2/28										
0519*	Sweetwater Road	1	33	5/15-11/14	0518	Sweetwater Basin	1	223	107	7/15-8/15	230	0	0	165
0521*	Virginia City Hill	1	830	5/1-11/15	0521	Virginia City Hill	1	722	328	5/20-11/19	(250) 2,550	0	0	1,173
0522	Wall Creek	1	145	5/15-10/31	0522	Wall Creek	1	145	145	6/1-10/31	0	0	0	375
0525	Middle Fork	3	449	6/1-11/30	0525	Middle Fork	3	449	449	6/1-11/30	560	0	0	734
0526	Dry Lakes	1	469	6/1-10/30	0526	Dry Lakes	1	469	283	6/1-10/30	608	0	0	403
0530*	McHessor Creek	1	199	6/1-10/31	0530	McHessor Creek	1	199	97	7/1-10/15	0	0	0	154
0531*	Copper Mtn.	1	111	7/1-10/15										
0532*	Ramshorn	1	246	5/20-10/19	0531	Copper Mtn.	1	357	158	5/20-10/19	422	0	0	246
0533*	Timber Creek	1	779	6/1-10/15	0533	Timber Cr.	1	763	513	6/9-10/15	(165) 661	0	0	699
0699*	Nicholia Creek	1	268	5/15-7/1										
0700*	Rio Puerco	1	893	5/15-7/1	0699	Nicholia	1	1,045	1,045	5/15-7/1	0	0	0	1,701
0702*	Thomas	1	80	6/10-9/10										
0716*	Thomas	1	174	5/15-11/14	0702	Thomas	2	254	254	5/15-11/15	0	320	0	446
0703	Wolfe	1	194	5/15-10/30	0703	Wolfe	1	194	175	5/15-7/15; 8/15-10/30	0	0	0	189
0706*	Wheat	1	199	11/15-12/14	0706	Wheat	1	161	39	11/15-12/14	0	0	0	50

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TABLE 8A, page 11

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allotment Number	Allotment Name	Number of Operators	Current Permitted Use (AUMs)	Existing Season of Use	Allotment Number	Allotment Name	Number of Operators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Prescribed Burn (acres)[b]	Sagebrush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximization (AUMs)
0708	Fish Creek	1	1,104	5/1-6/31	0708	Fish Creek	1	1,104	1,104	5/1-6/1; 8/15-10/15	0	0	0	1,815
0710*	Allotment H	1	750	8/1-11/1										
0711*	Allotment B	1	84	5/15-11/14	0710	Staudenmeyer	1	826	783	7/25-10/30	0	1,659	0	1,628
0714*	Wellborn				0714	Wellborn-Dell	1	264	264	5/15-7/15; 8/15-10/20	0	0	0	425
0720*	Old Whitworth	1	145	6/10-7/30	0720	Whitworth	1	139	132	6/1-9/20	0	0	0	155
0722	Crampton	1	88	5/15-11/14	0722	Small Horn Can.	1	88	43	8/4-10/15	0	0	0	46
0725*	Horse Prairie Lvst. SCG	1	161	5/15-11/14										
0726*	Horse Prairie Lvst. S-C	1	721	7/1-8/15	0725	Horse Prairie Livestock	1	635	301	5/20-9/5	0	400	0	399
0198*	Roe	1	144	7/1-10/15										
0727*	Dellar Gordon	1	133	7/1-10/15										
0728*	West Side	1	137	6/1-8/15										
0729*	Roe Ranch Co.SGC	1	3	9/15-11/14	0727	Roe Ranch	1	417	417	7/1-10/15	0	0	0	1,723
0730	Jones B&C Indv.	1	231	6/28-9/30	0730	Jones-Peet	1	231	231	7/1-10/15	883	0	0	1,115
0732*	Sand Dunes	1	181	6/19-7/31	0732	Sand Dunes	1	148	109	7/1-10/14	0	0	0	142
0734*	Gilbert SGC	1	122	5/15-11/14	0734	Snowcrest	1	117	117	5/15-6/15; 9/1-11/15	0	0	0	506
0735*	Kennedy Place	1	769	6/1-9/30										
0736*	Forsythe Ranch SGC	1	510	5/15-5/31; 10/1-12/15	0735	Forsythe	1	1,189	1,041	6/1-11/30; 7/1-9/30	0	0	0	1,113
0738	Coconougher Indv.	1	100	5/16-9/30	0738	Coconougher	1	100	39	6/1-9/30	0	0	0	57
0740*	Chaffin Livst.	1	402	6/16-7/15; 10/1-10/25	0740	East Clover Creek	1	318	318	6/15-10/15	0	2,692	0	2,178
0741*	Lichtenberg	1	744	6/1-9/15	0741	Indian Creek	1	662	331	6/1-9/15	620	0	0	520

0745	Taylor Creek	1	69	6/1-9/30	0745	Taylor Creek	1	69	69	6/1-9/30	0	1,000	0	264
0748*	Medicine Lodge Allotment	1	1,492	5/15-10/15										
0749*	Medicine Lodge SGC	1	30	3/1-5/14	0748	Briggs-Medicine Lodge	1	1,476	1,476	5/15-10/14	580	0	0	2,475
0753*	Donovan SGC	1	279	6/15-8/31	0753	Bannock Pass	1	112	69	6/15-9/1	0	0	0	77
0758	Dad Cr. Barnett	1	34	5/15-11/14	0758	Dad Creek	1	34	34	7/1-9/15	0	0	0	99
	Subtotal, Proposed AMPs		68,367					61,664	49,122		(5,623) 27,379	(1,800) 26,010	(500) 6,028	87,127
Proposed to be Unleased Non-AMPs														
0431	Harry Shaw	1	4	9/1-10/31	0431	Harry Shaw	1	4	0	5/1-10/31	0	0	0	0
0503	Wigwam Creek	1	49	6/28-7/19	0503	Wigwam Creek	1	49	0	6/28-7/19	0	0	0	0
0505	MCCSA	7	11	5/15-11/14	0505	MCCSA	7	11	0	N/A	0	0	0	0
0515	Big Hole	1	15	5/15-11/14	0515	Big Hole	1	15	0	N/A	0	0	0	0
0520	Overnite	1	1	5/1-7/31	0520	Overnite	1	1	0	N/A	0	0	0	0
0535	Axes Canyon	1	2	7/1-8/30	0535	Axes Canyon	1	2	0	7/1-10/31	0	0	0	0
0543	Corral Creek	1	27	5/15-11/14	0543	Corral Creek	1	27	0	6/15-9/30	0	0	0	0
0546	Jumping Horse	1	2	11/1-11/30	0546	Jumping Horse	1	2	0	N/A	0	0	0	0
0639*	Rio Puerco		0		0639	Rio Puerco	1	0	0	10/1-5/15	0	0	0	0
0674*	Stone Creek		0		0674	Stone Creek	1	0	0	N/A	0	0	0	0
0680*	McHessor		0		0680	McHessor Creek	1	0	0	6/1-10/31	0	0	0	0
0701*	Tom Creek		0		0701	Tom Creek	2	0	0	N/A	0	0	0	0
0721	Rock-Moose	1	91	6/26-9/25	0721	Rock-Moose	1	91	0	6/26-9/25	0	0	0	0
0724	Flying N	1	15	5/15-11/14	0724	Flying N	1	15	0	5/15-11/30	0	0	0	0
0743	Big Hole Grazing Association	5	54	6/15-7/31	0743	Big Hole Grazing Association	5	54	0	6/15-7/31	0	0	0	0
Unlsd.	Aspen	0	0		Unlsd.	Aspen	0	0	0	N/A	0	0	0	0

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TABLE 8A, page 13

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Allotment Number	Allotment Name	Number of Operators	Current Permitted Use (AUMs)	Existing Season of Use	Allotment Number	Allotment Name	Number of Operators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Prescribed Burn (acres)[b]	Sagebrush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximization (AUMs)
Unlsd.	Badger	0	0		Unlsd.	Badger	0	0	0	N/A	0	0	0	0
"	Bear Gulch	0	0		"	Bear Gulch	0	0	0	N/A	0	0	0	0
"	Blain Spring	0	0		"	Blain Spring	0	0	0	N/A	0	0	0	0
"	Bureau of Rec.	0	0		"	Bureau of Rec.	0	0	0	N/A	0	0	0	0
"	Caboose Canyon	0	0		"	Caboose Canyon	0	0	0	N/A	0	0	0	0
"	Charcoal Mtn.	0	0		"	Charcoal Mtn.	0	0	0	N/A	0	0	0	0
"	Clovis Gulch	0	0		"	Clovis Gulch	0	0	0	N/A	0	0	0	0
"	Deadwood Gulch	0	0		"	Deadwood Gulch	0	0	0	N/A	0	0	0	0
"	Dog Paw	0	0		"	Dog Paw	0	0	0	5/1-11/30	0	0	0	0
"	Dog Town	0	0		"	Dog Town	0	0	0	N/A	0	0	0	0
"	Dry Creek	0	0		"	Dry Creek	0	0	0	6/1-8/30	0	0	0	0
"	East Fork	0	0		"	East Fork	0	0	0	N/A	0	0	0	0
"	Fox Gulch	0	0		"	Fox Gulch	0	0	0	7/16-9/30	0	0	0	0
"	Game Range	0	0		"	Game Range	0	0	0	N/A	0	0	0	0
"	Goat Mtn.	0	0		"	Goat Mtn.	0	0	0	N/A	0	0	0	0
"	Irishman's	0	0		"	Irishman	0	0	0	N/A	0	0	0	0
"	Lodgepole	0	0		"	Lodgepole	0	0	0	N/A	0	0	0	0
"	Mahogany	0	0		"	Mahogany	0	0	0	N/A	0	0	0	0
"	Maiden Rock	0	0		"	Maiden Rock	0	0	0	N/A	0	0	0	0
"	Montana Unleased	0	0		"	Montana Unleased	0	0	0	N/A	0	0	0	0

Unlsd.	Pony	0	0		"	Pony	0	0	0	N/A	0	0	0	0
"	Red Bluff	0	0		"	Red Bluff	0	0	0	N/A	0	0	0	0
"	Red Mtn. Campground	0	0		"	Red Mtn.Campground	0	0	0	N/A	0	0	0	0
"	Retort Mtn.	0	0		"	Retort Mtn.	0	0	0	N/A	0	0	0	0
"	Rosy Finch	0	0		"	Rosy Finch	0	0	0	N/A	0	0	0	0
"	Ruby Mtn.	0	0		"	Ruby Mtn.	0	0	0	N/A	0	0	0	0
"	Sandpiper	0	0		"	Sandpiper	0	0	0	N/A	0	0	0	0
"	Sand Creek	0	0		"	Sand Creek	0	0	0	5/1-11/30	0	0	0	0
"	Sheep Mtn.	0	0		"	Sheep Mtn.	0	0	0	N/A	0	0	0	0
"	Shepherd's Cross	0	0		"	Shepherd's Cross	0	0	0	N/A	0	0	0	0
"	Shrike	0	0		"	Shrike	0	0	0	N/A	0	0	0	0
"	Snowberry	0	0		"	Snowberry	0	0	0	N/A	0	0	0	0
"	Sourdough	0	0		"	Sourdough	0	0	0	10/1-2/28	0	0	0	0
"	Swamp Creek	0	0		"	Swamp Creek	0	0	0	6/1-10/30	0	0	0	0
"	Two Heart	0	0		"	Two Heart	0	0	0	6/1-10/31	0	0	0	0
Subtotal, Proposed to be Unleased Non-AMPs			271					271	0		0	0	0	0
Non-AMPs														
0103	Hildreth Individual	1	183	11/1-2/28	0103	Hildreth	1	183	98	11/1-2/28	0	0	0	98
0105	Anderson	1	417	6/1-11/30	0105	Anderson	1	417	171	6/1-11/30	0	0	0	171
0106	Bar OK	1	45	6/1-9/30	0106	Bar OK	1	45	51	7/1-9/30	0	0	0	51
0111	Selway Isd. Tracts	1	24	5/15-11/14	0111	Selway	1	24	17	6/1-11/30	0	0	0	17
0112	Bjorni SGC	1	12	5/15-11/14	0112	Bjorni	1	12	9	5/1-11/30	0	0	0	9
0115	Cabin Creek	1	37	6/1-7/14; 10/15-12/15	0115	Lost Custodial	1	37	57	5/1-11/30	0	0	0	57
0125	Huntsman SGC	1	183	5/15-11/14	0125	Huntsman SGC	1	183	53	3/1-2/28	0	0	0	53

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Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres)[b]	Sage-brush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximi-zation (AUMs)
0127	Hildreth SGC	1	251	5/15-11/14	0127	Hildreth Lvst.	1	251	104	5/15-11/30	0	0	0	104
0128	Les Jones	1	14	6/1-10/31	0128	G & L Ranches	1	14	6	6/1-11/30	0	0	0	6
0132	Erb SGC	1	116	5/15-11/14	0132	Erb	1	116	128	5/15-11/30	0	0	0	128
0134	G. Hayden	1	36	5/15-12/30	0134	Hayden	1	36	36	5/15-12/30	0	0	0	36
0139	K-6	3	15	5/15-11/14	0139	K-6	3	15	8	5/15-11/30	0	0	0	8
0140	A. Jones	1	76	5/15-11/14	0140	Arlo Jones	1	76	76	2/1-6/1	0	0	0	76
0141	Johnson Brothers	1	115	6/1-10/30	0141	Johnson Brothers	1	115	38	6/1-10/30	0	0	0	38
0142	Hirschey	1	50	5/1-12/30	0142	Hirschey	1	50	61	8/1-10/30	0	0	0	61
0144	Magpie Gulch-Trail Creek	1	58	6/1-6/30	0144	Magpie Gulch-Trail Creek	1	58	45	6/1-6/30	0	0	0	45
0153	3-CENT-MAT-SGC	1	256	3/1-2/28	0153	Matador SGC	1	256	215	5/1-11/30	0	0	0	215
0155	L Diamond SGC	1	256	5/15-11/14	0155	L Diamond Ranch SGC	1	256	133	5/1-11/30	0	0	0	133
0157	Long Creek SGC	1	244	3/1-2/28	0157	Long Creek	1	244	41	5/15-12/15	0	0	0	41
0162	Munday Ind. SGC	1	78	5/1-10/30	0162	Munday Ind.	1	78	51	7/1-10/30	0	0	0	51
0163	Morton Ind. SGC	1	18	5/15-11/14	0163	Morton	1	18	18	5/15-7/15	0	0	0	18
0164	Lee Martinell SGC	1	26	5/15-11/14	0164	Lee Martinell	1	26	83	6/1-10/31	0	0	0	83
0166	Esterwald	1	12	5/15-11/14	0166	Esterwald	1	12	5	5/15-11/30	0	0	0	5
0170	Rebich & Sons	1	136	5/15-11/30	0170	Rebich & Sons	1	136	27	6/2-11/30	0	0	0	27
0174	E. Rebich	1	27	5/15-11/14	0174	Rebich	1	27	62	7/15-10/30	0	0	0	62
0175	Railroad	1	202	6/1-9/30	0175	Railroad	1	202	296	9/1-3/31	0	0	0	296

0176	E. Munday	1	41	5/1-10/30	0176	E. Munday	1	41	79	5/1-10/30	0	0	0	79
0178	Long Creek	1	164	7/1-10/15	0178	Mooney	1	164	35	7/1-10/15	0	0	0	35
0180	Wilson Lease SGC	1	24	5/15-11/14	0180	Duffner Wilson Lease	1	24	9	5/1-10/30	0	0	0	9
0183	Passmore SGC	1	75	5/15-11/14	0183	Passmore	1	75	16	5/1-11/30	0	0	0	16
0184	Meine Land & Lvst.	1	150	6/15-10/14	0184	Meine Land & Lvst.	1	150	89	6/15-10/14	0	0	0	89
0185	McCandless Bros.SGC	1	237	5/15-11/14	0185	McCandless	1	237	237	6/1-10/31	0	0	0	237
0187	Seybold	1	233	5/1-11/14	0187	Seybold	1	233	86	5/1-5/31; 10/1-11/30	0	0	0	86
0188	Selkirk	1	219	6/1-10/31	0188	Selkirk	1	219	111	8/15-10/31	0	0	0	111
0189	Schonenberger	0	10	5/15-11/14	0189	Schonenberger	0	10	11	7/1-10/30	0	0	0	11
0190	Rutledge	1	60	6/1-7/1	0190	Rutledge Ranches	1	60	62	8/1-10/30	0	0	0	62
0191	Farley Creek-Polaris	2	114	5/15-11/14	0191	Farley Polaris	2	114	114	5/15-11/30	0	0	0	114
0194	Browns Canyon-BUR-REC-SGC	1	39	5/15-11/14	0194	Browns Canyon	1	39	13	7/15-10/30	0	0	0	13
0196	F. Rutledge	1	5	9/1-9/30	0196	Rutledge-Doolittle Tract	1	5	6	9/1-9/30	0	0	0	6
0237	Third Creek	1	55	5/16-10/15	0237	Third Creek	1	55	21	5/16-10/15	0	0	0	21
0300* 0453*	Seymour SGC Chalk Bluff Nyhart	1 1	21 144	5/15-11/14 5/16-10/30	0300	Chalk Bluff	1	165	174	8/1-11/30	0	0	0	174
0304	Willow Creek Inc.	1	11	5/15-11/14	0304	Willow Creek-Rochester	1	11	17	6/15-8/1; 8/1-9/30	0	0	0	17
0306	Waterloo	7	143	6/16-9/15	0306	Waterloo	7	143	94	6/16-9/15	0	0	0	94
0307	Carpenter Ind. SGC	1	26	10/1-11/15	0307	Carpenter	1	26	10	5/1-7/1	0	0	0	10
0310	Childs Ind. SGC	1	62	5/15-11/14	0310	Childs Ind.	1	62	51	4/1-6/30	0	0	0	51
0331	Lott Ind.	1	20	6/16-8/15	0331	Lott	1	20	39	8/15-10/15	0	0	0	39
0334* 0506*	Mt. Haggin Ind. SGC	1 1	122 15	6/15-10/15 5/15-11/14	0334	Mt. Haggin	1	137	120	6/15-10/15	0	0	0	120
0336	Peck Ind. SGC	1	11	5/15-11/14	0336	Peck Ind.	1	11	11	6/1-9/30	0	0	0	11

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TABLE 8A, page 17

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres)[b]	Sage-brush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximi-zation (AUMs)
0338	Pendergast Ind. SGC	1	18	5/15-11/14	0338	Pendergast	1	18	19	5/5-5/20; 11/1-12/15	0	0	0	19
0339	Deep Creek	1	215	5/16-9/30	0339	Deep Creek	1	215	146	5/16-9/30; 8/1-10/30	0	0	0	146
0340	Leffler SGC	1	41	5/15-11/14	0340	Leffler Creek	1	41	32	5/15-7/1; 10/1-10/15	0	0	0	32
0346	Smith Ind. SGC	1	24	5/15-11/14	0346	Smith Ind.	1	24	25	6/1-10/15	0	0	0	25
0349	White Rock SGC	1	60	5/15-11/14	0349	White Rock	1	60	48	5/1-9/15	0	0	0	48
0350	Kearns Ind. SGC	1	17	5/15-11/14	0350	Kearns Ind.	1	17	27	3/1-3/29	0	0	0	27
0352	Harriet Lou Creek SGC	1	22	5/15-11/14	0352	Harriet Lou Cr.	1	22	9	6/1-6/30	0	0	0	9
0355* 0356*	McCullough Ind. McCullough "B" SGC	1 1	167 30	11/1-11/30 5/16-10/15	0355	McCullough Ind.	1	197	167	11/1-11/30	0	0	0	167
0370	Individual A & B	1	130	5/16-10/15	0370	Individual A & B	1	130	169	5/16-6/30	0	0	0	169
0371	Fish Creek SGC	1	12	5/15-6/15	0371	Fish Creek SGC	1	12	18	5/15-6/15	0	0	0	18
0378	Charles Armstrong	1	27	6/1-11/30	0378	Armstrong	1	27	25	6/1-11/30	0	0	0	25
0379	Ballard	1	4	6/1-9/30	0379	Ballard	1	4	4	6/1-9/30	0	0	0	4
0380	Bausch	1	73	6/1-8/15	0380	Bausch	1	73	73	6/1-10/15	0	0	0	73
0386	Carter	1	12	6/15-9/15	0386	Carter	1	12	9	6/15-9/30	0	0	0	9
0390	Dehaan	1	8	5/1-11/30	0390	Dehaan	1	8	8	5/1-11/30	0	0	0	8
0393	Luzelle Easter	1	165	6/1-2/29	0393	Easter	1	165	177	5/1-2/1	0	0	0	177
0394	Elmer	1	33	6/15-8/15	0394	Elmer	1	33	76	6/1-11/30	0	0	0	76
0395	Evans	1	63	5/15-5/31; 11/1-11/15	0395	Biltmore	1	63	63	5/1-11/30	0	0	0	63

0399	Frisbee-McGee	2	230	6/21-10/15	0399	Frisbee-McGee	2	230	89	8/1-10/30	0	0	0	89
0400	Goggins Herefords	1	38	6/1-9/30	0400	Goggins Hereford	1	38	64	5/1-11/30	0	0	0	64
0401	Trail Creek	1	20	6/16-10/1	0401	Lineberger	1	20	23	6/16-10/10	0	0	0	23
0405	Peter J. Jackson	1	38	5/16-11/15	0405	J.P. Jackson	1	38	69	5/16-11/15	0	0	0	69
0406	Peter V.Jackson 3rd	1	62	5/16-11/15	0406	Peter V. Jackson	1	62	85	4/1-12/31	0	0	0	85
0408	William T. Jackson	1	48	6/1-11/1	0408	William T. Jackson	1	48	48	8/15-12/30	0	0	0	48
0410	Jourdain Creek	1	20	6/16-10/15	0410	Jourdain	1	20	13	6/16-10/15	0	0	0	13
0412	Glenn Kyle	1	23	9/1-10/15	0412	Glenn Kyle	1	23	38	9/1-10/15	0	0	0	38
0413	Billy Grant Kyle	1	23	6/1-10/31	0413	Billy Grant Kyle	1	23	29	7/1-8/15	0	0	0	29
0415	Manion	1	4	8/1-10/20	0415	Manion	1	4	2	8/1-10/20	0	0	0	2
0416	Ledyard-McGuire	1	82	6/15-9/15	0416	Ledyard-McGuire	1	82	98	8/1-10/31	0	0	0	98
0417	Michael	1	86	6/1-8/31	0417	Michael	1	86	160	6/1-10/31	0	0	0	160
0418	Miller	1	5	6/1-10/31	0418	Miller	1	5	4	10/1-4/10	0	0	0	4
0420	Flying D	1	35	3/1-5/15	0420	Flying D	1	35	12	3/10-5/10	0	0	0	12
0422	Owens	1	20	6/1-10/31	0422	Owens	1	20	20	10/1-11/30	0	0	0	20
0429	Robison	1	96	5/15-6/14	0429	Robison	1	96	63	6/16-8/30	0	0	0	63
0430	Sacry	1	34	6/1-10/31	0430	Sacry	1	34	34	8/15-10/31	0	0	0	34
0432	Vern Shaw	1	9	4/20-6/10	0432	Vern Shaw	1	9	23	4/20-6/10	0	0	0	23
0434	Shelton	1	113	3/1-6/15; 10/15-2/29	0434	Shelton	1	113	49	8/15-11/30	0	0	0	49
0435	Glen Shelton	1	15	5/15-7/1	0435	Glen Shelton	1	15	18	6/15-9/30	0	0	0	18
0436	Shirley	1	64	5/15-11/14	0436	Shirley	1	64	64	8/15-11/14	0	0	0	64
0437	Cliff Lake	1	8	6/1-10/31	0437	Cliff Lake	1	8	7	6/1-11/30	0	0	0	7
0438	Sitz	1	34	6/1-10/31	0438	Sitz	1	34	18	3/1-1/15	0	0	0	18
0440	Willow Creek	1	164	7/15-10/31	0440	Willow Cr.-Madison	1	164	41	7/15-10/31	0	0	0	41
0444	Moran	1	25	6/1-10/30	0444	Moran	1	25	33	5/1-9/30	0	0	0	33

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Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
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0451	Anderson	1	43	5/15-11/14	0451	Minnie Creek	1	43	32	6/1-8/15	0	0	0	32
0452	Armitage	1	35	5/15-11/14	0452	Armitage	1	35	32	5/1-10/30	0	0	0	32
0454	Walker Creek	1	169	6/1-10/31	0454	Walker Creek	1	169	44	5/1-11/30	0	0	0	44
0455	Butts	1	14	11/1-12/31	0455	Butts	1	14	14	10/1-12/1	0	0	0	14
0457*	Bar 7				0457	Bar 7	1	635	372	5/1-11/30	0	0	0	372
0458	Whitney	1	24	5/15-11/14	0458	Whitney	1	24	15	5/1-11/30	0	0	0	15
0460*	Custodial	1	253	5/15-11/14	0460	Sun Ranch	1	250	82	6/1-10/15	0	0	0	82
0461	Boomhower	1	70	5/15-11/14	0461	C B Ranch	1	70	68	12/1-7/1	0	0	0	68
0462	Squaw Creek	1	153	6/1-9/30	0462	Squaw Creek	1	153	104	8/1-10/15	0	0	0	104
0463	Laurin Canyon	1	143	7/1-10/31	0463	Laurin Canyon	1	143	114	8/1-10/31	0	0	0	114
0464	Coconougher	1	15	6/1-9/1	0464	Coconougher	1	15	6	6/1-8/30	0	0	0	6
0465* 0467*	Mill Creek Gustin	1 1	26 32	12/1-2/29 6/15-10/1	0465	Mill Cr.-Gustin	1	58	51	5/1-5/31	0	0	0	51
0470	Nyhart	1	89	6/1-11/1	0470	Nyhart	1	89	85	7/15-11/1; 6/1-11/1	0	0	0	85
0472	Daems	1	12	5/15-11/14	0472	Daems	1	12	12	4/1-6/30; 11/1-11/30	0	0	0	12
0473*	Blue Lake				0473	Blue Lake	2	34	16	6/20-11/1	0	0	0	16
0474	Durham	1	23	6/15-8/30	0474	Durham	1	23	33	Sum-Fall-Rest	0	0	0	33
0476	Elkhorn	1	35	5/15-11/14	0476	Elkhorn	1	35	22	10/1-5/31	0	0	0	22
0477	Elser	1	45	6/1-11/30	0477	Elser	1	45	23	8/1-9/30	0	0	0	23
0478	Funk	1	48	6/1-9/31	0478	Funk	1	48	23	5/1-10/30	0	0	0	23
0480*	Tucker Creek	1	71	6/1-12/14	0480	Tucker Creek	1	21	16	6/1-12/14	0	0	0	16

0487	Baker Summit	1	59	5/15-11/14	0487	Baker Summit	1	59	26	5/1-11/30	0	0	0	26
0491*	Hungry Hollow	1	263	5/15-10/31	0491	Black Rock	1	218	147	6/10-11/1	0	0	0	147
0492	Garnet	1	94	5/15-10/14	0492	Garnet	1	94	23	8/1-10/31	0	0	0	23
0493	Pierce Canyon	1	75	5/15-11/14	0493	Pierce Canyon	1	75	75	8/1-11/30	0	0	0	75
0494	Riverlodge	1	35	6/1-11/1	0494	Riverlodge	1	35	24	8/15-11/15	0	0	0	24
0495	Bench Allotment	1	23	5/1-6/1	0495	Bench Allot.	1	23	21	5/1-5/31	0	0	0	21
0496	Trout Creek	1	40	7/1-9/15	0496	Trout Creek	1	40	37	6/1-9/15	0	0	0	37
0500	Cedar Creek Fan	1	9	5/15-11/14	0500	Cedar Creek	1	9	7	3/1-10/31	0	0	0	7
0502*	Wisconsin Creek	0			0502	Eclipse	1	4	4	5/1-11/30	0	0	0	4
0504	Moorse Creek	1	24	5/15-11/30	0504	Moorse Creek	1	24	24	10/1-12/1	0	0	0	24
0508	LaMarche Creek	1	40	5/15-11/14	0508	LaMarche Cr.	1	40	33	5/1-11/30	0	0	0	33
0509	Herman Gulch	1	27	6/1-10/30	0509	Herman Gulch	1	27	7	6/1-10/30	0	0	0	7
0511	Hoffman Creek	1	36	6/15-12/31	0511	Hoffman Cr.	1	36	35	6/15-12/31	0	0	0	35
0513	Big Sheep	2	107	5/1-11/19	0513	Big Sheep	2	107	73	5/19-2/28	0	0	0	73
0514	Hillside	1	58	9/1-11/30	0514	Hillside	1	58	29	10/1-3/1	0	0	0	29
0517	Red Canyon	2	171	7/1-10/15	0517	Red Canyon	2	171	63	5/1-10/30	0	0	0	63
0524	Riverside	1	112	6/1-9/30	0524	Riverside	1	112	122	8/1-9/30	0	0	0	122
0527	Spring Canyon	1	56	7/15-10/1	0527	Spring Canyon	1	56	38	7/15-10/1	0	0	0	38
0528	Spear Place	1	141	7/1-10/10	0528	Spear Place	1	141	89	7/1-10/10	0	0	0	89
0529	McAtee Bridge	1	78	5/15-11/14	0529	McAtee Bridge	1	78	82	11/1-6/1	0	0	0	82
0534	Carter Creek	1	97	5/15-11/14	0534	Carter Creek	1	97	63	6/1-11/31	0	0	0	63
0536	Antelope Gulch	1	5	5/20-10/1	0536	Antelope Gulch	1	5	3	5/1-10/31	0	0	0	3
0537	Beaverhead Rock	1	7	5/15-6/20	0537	Beaverhead Rock	1	7	5	5/15-6/20	0	0	0	5
0539	Kelly Meridian	1	32	5/15-11/14	0539	Kelly Meridian	1	32	32	5/15-6/30	0	0	0	32
0540	Aspen Creek	1	61	5/15-11/14	0540	Aspen Creek	1	61	63	8/15-10/30	0	0	0	63
0541	York Gulch	1	10	5/15-10/15	0541	York Gulch	1	10	7	5/25-6/1; 9/23-9/30	0	0	0	7

*Refer to table 8B for allotment divisions. **Not adjudicated to any operator; however, operators may apply for it. ***This is one AMP; however, it is being handled as two.

TABLE 8A, page 21

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs) a	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres) b	Sage-brush Spray (acres) b	Plowing and Seeding (acres) b	Livestock Forage Maximi-zation (AUMs)
0542	Hritsco	1	49	6/1-10/15	0542	Hritsco	1	49	30	6/1-10/15	0	0	0	30
0545	Aqueduct	1	5	6/1-9/30	0545	Aqueduct	1	5	4	6/1-12/30	0	0	0	4
0547	Valley Garden	1	33	6/1-9/15	0547	Valley Garden	1	33	30	5/1-11/30	0	0	0	30
0550	M.V.H.P.A.		30	5/21-7/1	0550	Madison Valley Holding Past.		30	23	5/20-6/25	0	0	0	23
0479*	Garden Creek		0		0601	Garden		107	66	5/15-11/1	0	0	0	66
0602	Hildreth 1A	1	32	5/15-12/31	0602	Hildreth 1A	1	32	32	6/1-6/15; 11/15-12/31	0	0	0	32
0012*	Matador		0		0603	Kingfisher	1	94	96	7/10-8/15; 5/20-8/15; 11/1-12/1	0	0	0	96
0012* 0147*	Matador Matador		0 0		0604	Little Spring Gulch	1	497	286	5/20-6/20; 10/15-1/1	0	0	0	286
0013*	Gallagher Mtn.		0		0605	Lovell's Lake	1	24	24	5/1-11/30	0	0	0	24
0021*	Leadore		0		0606	Leadore	1	4	7	10/1-5/15	0	0	0	7
0029*	Snowline		0		0607	Snowline AMP Custodial		639	632	6/1-10/31	0	0	0	632
0033*	PHW		0		0608	P.H.W.	3	9	8	9/1-12/31	0	0	0	8
0034*	Red Mine		0		0609	Red Mine	1	2	2	5/1-11/30	0	0	0	2
0040*	Price Creek		0		0610	Price Creek	1	12	12	5/1-11/30	0	0	0	12
0042*	Meadow Creek		0		0611	Meadow Creek	2	40	40	5/1-11/30	0	0	0	40
0107*	Cabin Cr/Sheep Cr.		0		0612	Four Eyes	1	28	25	10/1-5/15	0	0	0	25
0108*	Hanson		0		0613	Hanson-Medicine Lodge	1	59	67	9/1-5/15	0	0	0	67
0108*	Hanson		0		0614	Hanson-Brown	1	43	48	9/1-12/31	0	0	0	48

0109*	Buhler		0		0615	Buhler	1	84	130	6/1-10/30	0	0	0	130
0115	Willy	1	45	6/1-9/30	0616	Willy	1	45	45	7/1-9/30	0	0	0	45
0122*	Holland Ranch Co.		0		0617	Holland-Buffalo Creek	1	147	111	4/1-9/3	0	0	0	111
0122*	Holland Ranch Co.		0		0618	Holland-Carroll	1	11	9	6/16-7/15	0	0	0	9
0122*	Holland Ranch Co.		0		0619	Holland-Bannack Road	1	22	16	5/15-11/30	0	0	0	16
0123*	F&E Huntsman		0		0620	Dell	1	14	15	5/1-11/30	0	0	0	15
0124*	Evan Huntsman		0		0621	Huntsman	1	243	132	7/1-9/30	0	0	0	132
0129*	Detton		0		0622	Detton	1	50	48	5/15-12/31	0	0	0	48
0135*	L. Hayden		0		0623	Dillon	1	9	10	6/1-10/30	0	0	0	10
0136*	Knox		0		0624	Knox	1	74	58	5/1-10/31	0	0	0	58
0138*	Kent		0		0625	Kent	1	11	11	5/18-1/10	0	0	0	11
0145*	Shesser Creek		0		0626	Shesser Cr.-Horse Prairie Tract	1	4	4	6/1-11/30	0	0	0	4
0145*	Shesser Creek		0		0627	Shesser-Stoll Tract	1	16	20	6/15-11/30	0	0	0	20
0149*	Rocky Hills BDEF SGC		0		0628	Rocky Hills	1	7	7	5/15-11/30	0	0	0	7
0149*	Rocky Hills BDEF SGC		0		0629	Rocky Hills-Painter Creek	1	16	16	5/15-11/30	0	0	0	16
0159*	L. Martinell		0		0630	Red Butte	1	13	14	4/1-10/30	0	0	0	14
0167*	Robb Creek		0		0631	Robb Creek		51	44	6/1-11/31	0	0	0	44
0120*	Carroll Holland		0											
0168*	Remely		0		0632	Timber Butte	1	31	19	5/1-11/30	0	0	0	19
0169*	Saier Ind.		0		0633	Saier Ind. SGC	1	6	6	4/15-11/30	0	0	0	6
0171*	J&M Rebich		0		0634	Henneberry Rdg.	1	9	9	5/1-10/30	0	0	0	9
0173*	J&E Rebich		0		0635	Gallagher	1	234	135	6/1-9/31	0	0	0	135
0177*	Moss		0		0636	Moss	1	102	107	3/1-11/30	0	0	0	107
0199*	Rody		0		0637	Rody	1	15	17	6/1-11/30	0	0	0	17

*Refer to table 8B for allotment divisions. **Not adjudicated to any operator; however, operators may apply for it. ***This is one AMP; however, it is being handled as two.

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs) a	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres) b	Sage-brush Spray (acres) b	Plowing and Seeding (acres) b	Livestock Forage Maximi-zation (AUMs)
0699*	Nicholia		0		0638	Cottonwood Cr.	1	116	133	7/1-10/30	0	0	0	133
0706*	Wheat		0		0640	Wheat	1	38	9	5/15-11/30	0	0	0	9
0711*	Allotment B		0		0641	Allotment B	1	8	7	5/1-11/30	0	0	0	7
0714*	Wellborn		0		0642	Truax Creek	1	97	92	6/1-12/31	0	0	0	92
0714*	Wellborn		0		0643	Orphan	1	14	12	6/1-12/31	0	0	0	12
0720*	Old Whitworth		0		0644	Whitworth	1	6	5	10/1-5/15	0	0	0	5
0725*	Horse Prairie Lvst. SGC		0		0645	Horse Prairie-Bloody Dick	1	221	105	7/15-9/14	0	0	0	105
0725*	Horse Prairie Lvst. SGC		0		0646	Horse Prairie-Station Creek	1	18	10	10/15-5/14	0	0	0	10
0725*	Horse Prairie Lvst. SGC		0		0647	Horse Prairie-N.Frying Pan	1	8	3	6/1-11/30	0	0	0	3
0732*	Sand Dunes		0		0648	Sand Dunes	1	33	24	6/1-10/31	0	0	0	24
0734*	Gilbert SGC		0		0649	Snowcrest	1	5	5	6/1-12/30	0	0	0	5
0736*	Forsythe Ranch SGC		0		0650	Forsythe	1	90	75	4/15-11/30	0	0	0	75
0740*	Chaffin Lvst.		0		0651	Chaffin Lvst.	1	84	110	6/16-7/15; 10/1-10/10	0	0	0	110
0741*	Lichtenberg		0		0652	Lichtenberg	1	82	43	6/1-11/30	0	0	0	43
0748*	Medicine Lodge		0		0653	Medicine Lodge	1	46	50	10/1-5/15	0	0	0	50
0753*	Donovan SGC		0		0654	Donovan	1	167	105	5/15-11/30	0	0	0	105
0761*	Mansfield Seeding		0		0655	Mansfield	1	6	10	10/1-5/15	0	0	0	10
0147*	Matador		0		0656	Crazy Springs	1	379	225	3/1-6/30	0	0	0	225
0305*	Burk		0		0657	Burk	1	15	7	5/16-6/30	0	0	0	7
0313*	Nelson		0		0658	Nelson	1	7	5	10/2-10/17	0	0	0	5
0327*	Devil's Dancehall		0		0659	Devil's Dancehall	1	95	42	6/1-11/30	0	0	0	42

0341*	Deno Creek		0		0660	Deno Creek	1	10	5	6/1-6/30	0	0	0	5
0353*	Rochester Basin SGC		0		0661	Rochester Bsn.	1	382	273	5/1-11/30	0	0	0	273
0421*	O.H.S.		0		0662	O.H.S.	1	3	2	7/1-9/25	0	0	0	2
0428*	Rice Ranches		0		0663	Rice Ranches	1	281	195	4/1-11/30	0	0	0	195
0460*	Custodial		0		0664	Wall Canyon	1	3	2	6/1-10/30	0	0	0	2
0469*	Belmont		0		0665	Belmont	1	328	217	6/1-10/30	0	0	0	217
0471*	Sweetwater		0		0666	Sweetwater	1	38	23	5/1-6/1	0	0	0	23
0479*	Garden Creek		0		0667	Fossil Basin	1	103	64	5/15-11/1	0	0	0	64
0480*	Tucker Creek		0		0668	Tucker-Feely Tracts	1	50	40	6/1-12/15	0	0	0	40
0485*	Granite-Moore S.		0		0669	Granite-Moore	1	154	92	6/1-11/30	0	0	0	92
0486*	Hogback		0		0670	Sodak Mine	1	156	167	10/1-5/31	0	0	0	167
0488*	Virginia City		0		0671	V.C. Custodial	1	394	160	6/1-11/30	0	0	0	160
0488*	Virginia City		0		0672	Belle	1	56	23	8/1-10/15	0	0	0	23
0491*	Hungry Hollow		0		0673	Hungry Hollow	1	45	30	5/15-6/10	0	0	0	30
0499*	Idaho Jack		0		0676	Idaho	1	62	37	8/15-10/31	0	0	0	37
0516*	Spring Brook		0		0677	Spring Brook	1	412	259	4/15-12/31	0	0	0	259
0518*	Sweetwater Basin		0		0678	Lark	1	184	89	5/1-11/30	0	0	0	89
0521*	Virginia City Hill		0		0679	Sand Coulee	1	108	47	6/1-10/10	0	0	0	47
0533*	Timber Creek		0		0681	Timber Creek	1	16	9	6/1-10/15	0	0	0	9
0499*	Maloney	1	5	5/15-11/14	0682	Ruby Dam	1	5	5		0	0	0	5
0704	Cabin Creek	1	38	5/1-5/8	0704	Cabin Creek	1	38	60	6/15-10/30	0	0	0	60
0705	Wildwood Ind.	1	46	6/1-9/30	0705	Wildwood Land & Cattle Co.	1	46	26	6/26-9/30	0	0	0	26
0707	Mudd Creek	1	51	5/15-11/14	0707	Stibal	1	51	234	4/15-11/30	0	0	0	234
0712	Slanger	1	18	5/15-11/14	0712	Slanger	1	18	22	6/1-8/30	0	0	0	22
0715	Turner	1	120	6/1-10/31	0715	Turner	1	120	76	6/1-10/30	0	0	0	76

*Refer to table 8B for allotment divisions. **Not adjudicated to any operator; however, operators may apply for it. ***This is one AMP; however, it is being handled as two.

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use[a] (AUMs)	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn[b] (acres)	Sage-brush Spray[b] (acres)	Plowing and Seeding[b] (acres)	Livestock Forage Maximi-zation (AUMs)
0717	Stanford	1	178	12/6-6/5	0717	Stanford	1	178	86	4/1-11/30	0	0	0	86
0718	Farley Shale Creek	1	32	5/15-11/14	0718	Farley-Shale	1	32	4	6/15-10/30	0	0	0	4
0719	Snowline Isolated Tracts		24	6/10-10/15	0719	Snowline Isolated		24	164	6/1-10/15	0	0	0	164
0723	Reservoir Creek SGC	7	30	5/15-11/14	0723	Reservoir Cr.	7	30	11	7/1-8/14	0	0	0	11
0729	Roe Ranch Co. SGC	1	3	5/15-11/14	0729	Roe Ranch	1	3	14	4/1-10/30	0	0	0	14
0731	Jones SGC	1	41	5/15-11/14	0731	G.W. Jones	1	41	26	6/1-10/15	0	0	0	26
0733	Holton Brothers SGC	1	75	5/15-11/14	0733	Holton Brothers	1	75	75	6/1-11/30	0	0	0	75
0737	Davis Ind. SGC	3	24	5/15-11/14	0737	Davis	3	24	18	6/1-10/1	0	0	0	18
0742	Clemow	1	16	5/15-11/14	0742	Clemow Ranches	1	16	32	5/1-12/30	0	0	0	32
0744	Else	1	5	5/15-7/31	0744	Lester Else	1	8	10	7/1-12/31	0	0	0	10
0746	McKnight Creek	1	144	6/1-11/30	0746	McKnight	1	144	304	6/1-11/30	0	0	0	304
0751	Mill Point	1	53	5/15-11/14	0751	Mill Point	1	53	103	5/1-6/30; 10/15-12/30	0	0	0	103
0754	Barrett Ranch SGC	1	10	5/15-11/14	0754	Barrett	1	10	2	10/1-5/15; 6/15-11/30	0	0	0	2
0755	Alkali Cr.-Barrett	1	87	5/15-11/14	0755	Alkali Creek	1	87	61	5/1-8/30	0	0	0	61
0756	Frenchie C-Barrett	1	9	5/15-11/14	0756	Frenchie Creek	1	9	9	5/15-11/30	0	0	0	9
0759	Road Agent Rock	1	11	5/15-11/14	0759	Road Agent Rock	1	11	41	5/15-11/30	0	0	0	41
0760	Shaffner SGC	1	27	5/15-11/14	0760	Shaffner	1	27	17	11/1-6/1	0	0	0	17
0762	Pierce SGC	1	27	5/15-11/14	0762	Pierce SGC	1	27	26	6/1-10/31	0	0	0	26
	Antelope Creek		0			Antelope Cr.		0	9	6/1-10/30	0	0	0	9
	Birch Creek		0			Birch Creek		0	5	6/1-10/15	0	0	0	5

	Boner Knob		0			Boner Knob		0	2	5/1-10/31	0	0	0	2
	Buckwheat		0			Buckwheat		0	5	6/1-10/30	0	0	0	5
	Bufflehead		0			Bufflehead		0	6	6/1-11/30	0	0	0	6
	Butch Hill		0			Butch Hill		0	6	6/1-11/30	0	0	0	6
	Cameron Bench		0			Cameron Bench		0	6	5/1-11/30	0	0	0	6
	Casey		0			Casey		0	16	4/1-6/1	0	0	0	16
	Checkerboard		0			Checkerboard		0	9	6/1-10/31	0	0	0	9
	Cherry Creek		0			Cherry Creek		0	7	5/1-10/31	0	0	0	7
	Chokecherry		0			Chokecherry		0	2	6/1-9/30	0	0	0	2
	Condor		0			Condor		0	4	5/1-11/30	0	0	0	4
	Corral Creek		0			Corral Creek		0	36	6/1-11/30	0	0	0	36
	Dickie		0			Dickie Custodial		0	11	5/1-10/31	0	0	0	11
	Dry Hollow		0			Dry Hollow		0	7	5/1-11/30	0	0	0	7
	Ennis Lake		0			Ennis Lake		0	2	7/1-3/31	0	0	0	2
	Flying N		0			Flying N		0	91	5/13-11/30	0	0	0	91
	Harrison		0			Harrison		0	13	8/1-11/30	0	0	0	13
	Jackrabbit		0			Jackrabbit		0	27	4/1-12/31	0	0	0	27
	Kidd		0			Kidd		0	9	10/1-5/31	0	0	0	9
	Lima		0			Lima		0	8	5/1-12/30	0	0	0	8
	Little America		0			Little America		0	37	5/1-11/30	0	0	0	37
	London Hills		0			London Hills		0	4	6/1-9/30	0	0	0	4
	Miner Creek		0			Miner Creek		0	11	6/21-9/30	0	0	0	11
	Monida		0			Monida		0	28	5/1-11/30	0	0	0	28
	Moose Creek		0			Moose Creek		0	38	6/1-10/30	0	0	0	38
	Mt. Humbug		0			Mt. Humbug		0	15	6/1-9/30	0	0	0	15
	Mule Shoe		0			Mule Shoe		0	3	10/1-10/30	0	0	0	3
	Mustang		0			Mustang		0	45	8/1-11/30	0	0	0	45

*Refer to table 8B for allotment divisions. **Not adjudicated to any operator; however, operators may apply for it. ***This is one AMP; however, it is being handled as two.

TABLE 8A, page 27

Present Livestock Grazing Situation					Proposed Grazing Management Program						Accelerated Livestock Forage Development			
Allot-ment Number	Allotment Name	Number of Oper-ators	Current Permitted Use (AUMs)	Existing Season of Use	Allot-ment Number	Allotment Name	Number of Oper-ators	Adjusted Current Permitted Use (AUMs)[a]	Proposed Initial Stocking (AUMs)	Proposed Season of Use	Pre-scribed Burn (acres)[b]	Sage-brush Spray (acres)[b]	Plowing and Seeding (acres)[b]	Livestock Forage Maximi-zation (AUMs)
	Ruddy Duck		0			Ruddy Duck		0	9	N/A	0	0	0	9
	Shepherd's Mtn.		0			Shepherd's Mtn.		0	4	N/A	0	0	0	4
	Spokane		0			Spokane		0	6	5/1-10/30	0	0	0	6
	Steamboat Rock		0			Steamboat Rock		0	1,487	6/1-11/30	0	0	0	1,487
	Sugarloaf Mtn.		0			Sugarloaf Mtn.		0	7	5/1-11/30	0	0	0	7
	Trapper Creek		0			Trapper Creek		0	13	5/1-11/30	0	0	0	13
	Triangle		0			Triangle		0	6	5/1-11/30	0	0	0	6
	Tumbleweed		0			Tumbleweed		0	7	5/1-11/30	0	0	0	7
	Warm Springs		0			Warm Springs		0	17	5/1-11/30	0	0	0	17
	Johnny Gulch		0			Johnny Gulch		0	2	N/A	0	0	0	2
Subtotal, Non-AMPs			11,533					19,155	16,461		0	0	0	16,461
Subtotals from Previous Pages:														
Existing AMPs			26,953					26,732	26,504		(0) 2,686	(0) 5,685	(0) 0	34,739
Revised AMPs			21,313					20,615	17,946		(660) 660	(0) 4,465	(831) 8,455	24,447
Proposed AMPs			68,367					61,664	49,122		(5,623) 27,379	(1,800) 26,010	(500) 6,028	87,127
Proposed to be Unleased			271					271	0		0	0	0	0
Non-AMPs			11,533					19,155	16,461		0	0	0	16,461
Total, all			128,437[c]					128,437[c]	110,033		(6,283) 30,725	(1,800) 36,160	(1,331) 14,483	162,774

*Refer to table 8B for allotment divisions. **Not adjudicated to any operator; however, operators may apply for it. ***This is one AMP; however, it is being handled as two.

SOURCE: BLM, 1979

a. Existing allotments have been combined and/or divided to form new allotments in the proposed grazing management program. The adjusted licensed use is shown for the newly formulated allotments.

b. Figures outside the parentheses indicate BLM acres that have a potential for vegetative manipulation. Figures in parentheses indicate BLM acres that have been approved for control through the land use plan.

c. This is total current grazing privileges derived from the Range Management Automated System (RMAS). Average actual use was used for alternative comparison purposes on the 48 existing and revised AMPs. The difference amounts to 3,060 AUMs; therefore, the adjusted grazing privileges are 125,377 AUMs.

TABLE 8B: CROSS-REFERENCE TO ALLOTMENT NAMES AND NUMBERS

Current Situation	Proposed Action				
Existing AMP	Existing AMP	Revised AMP	Proposed AMP	Non-AMP	Unallotted
0002 Clark Canyon		0002 Clark Canyon (Also see 0003 Clark Canyon, Current Situation)			
0003 Clark Canyon		0002 Clark Canyon (Also see 0002 Clark Canyon, Current Situation)			
0005 Stonehouse	0005 Stonehouse (Also see 0006 Stonehouse, Current Situation)				
0006 Stonehouse	0005 Stonehouse (Also see 0005 Stonehouse, Current Situation)				
0007 Armstead-Upper Sage	0007 Armstead-Upper Sage (Also see 0008 Armstead-Upper Sage, Current Situation)				
0008 Armstead-Upper Sage	0007 Armstead-Upper Sage (Also see 0007 Armstead-Upper Sage, Current Situation)				
0012 Matador	0012 Matador			0603 Kingfisher 0604 Little Spring Gulch (Also see 0147 Matador, Current Situation)	
0013 Gallagher Mountain	0013 Gallagher Mountain			0605 Lovell's Lake	
0018 Bear Creek	0018 Bear Creek (Also see 0036 Bear Creek, Current Situation)				
0021 Leadore		0021 Leadman (Also see 0761 Mansfield Seeding, Current Situation)		0606 Leadore	
0029 Snowline		0029 Snowline		0607 Snowline AMP Custodial	
0031 P.H.W.		0031 P.H.W.		0608 P.H.W.	
0034 Red Mine		0034 Red Mine		0609 Red Mine	
0036 Bear Creek	0018 Bear Creek (Also see 0018 Bear Creek, Current Situation)				
0040 Price Creek	0040 Price Creek			0610 Price Creek	
0042 Meadow Creek	0042 Meadow Creek			0611 Meadow Creek	

0116 Conover	0116 Conover (Also see 0117 Conover, Current Situation)				
0117 Conover	0116 Conover (Also see 0117 Conover, Current Situation)				
0167 Robb Creek	0167 Robb Creek			0631 Robb Creek	
0308 Camp Creek		0308 Camp Creek (Also see 0309 Camp Creek, Current Situation)			
0309 Camp Creek		0308 Camp Creek (Also see 0308 Camp Creek, Current Situation)			
0471 Sweetwater		0471 Sweetwater		0666 Sweetwater	
0761 Mansfield Seeding		0021 Leadman (Also see 0021 Leadore, Current Situation)		0651 Mansfield	
Non-AMPs					
0102 Cabin Creek			0102 Cabin Creek 0102 Morrison-Sweeney		
0107 Cabin Creek-Sheep Creek			0107 Porcupine Canyon 0270 Lima Peaks (Also see 0714 Wellborn, Current Situation) 0269 Four Eyes	0612 Four Eyes	
0108 Hansen			0108 Hansen Creek	0613 Hansen-Medicine Lodge 0614 Hansen-Brown Tract	
0109 Buhler			0109 Weldon Buhler	0615 Buhler	
0120 Carroll-Holland			0120 Frenchie-Carroll-Holland (Also see 0121 Frenchman-Holland, Current Situation)	0632 Timber Butte (Also see 0168 Remely, Current Situation)	
0121 Frenchman-Holland			0120 Frenchie-Carroll-Holland (Also see 0120 Carroll-Holland, Current Situation)		
0122 Holland Ranch Co.			0122 Taylor Creek-Buffalo Creek	0617 Holland-Buffalo Cr. 0618 Holland-Carroll 0619 Holland-Bannack Road	
0123 F&E Huntsman			0123 Huntsman	0620 Dell	
0124 Evan Huntsman			0124 Cedar Creek	0621 Huntsman	
0129 Detton			0129 Big Spring Gulch	0622 Detton	
0131 David Hulet			0131 Frying Pan (Also see 0133 Hulet, Current Situation)		

TABLE 8B, Page 3

Current Situation	Proposed Action				
Non-AMP	Existing AMP	Revised AMP	Proposed AMP	Non-AMP	Unallotted
0133 Hulet			0131, Frying Pan (Also see 0131, David Hulet, Current Situation)		
0135 L. Hayden			0135 Big Hole Road	0623 Dillon	
0136 Knox			0136 Knox	0624 Knox	
0138 Kent			0138 Kent-Price Canyon	0625 Kent	
0145 Shesser			0145 Lemhi Pass	0626 Shesser Creek-Horse Prairie 0627 Shesser Creek-Stoll	
0147 Matador			0147 Matador-Blacktail	0656 Crazy Springs 0604 Little Spring Gulch (Also see 0012 Matador, Current Situation)	
0148 L.C. Livestock			0148 Rocky Hills (Also see 0150 Rocky Hills A&C, Current Situation)		
0149 Rocky Hills-BDEF-SGC			0149 Radio-TV Tower (Also see 0150 Rocky Hills A&C, Current Situation)	0628 Rocky Hills, Allotment E 0629 Rocky Hills-Painter Creek	
0150 Rocky Hills - A&C			0148 Rocky Hills 0149 Radio-TV Tower		
0151 Centennial Matador			0151 Lima Reservoir (Also see 0154 Long Creek, 0747 Lower Ritchie Unit, 0750 Lower Ritchie SGC, Current Situation)		
0152 3-Centennial-Mat			0152 Long Creek (Also see 0154 Long Creek, Current Situation)		
0154 Long Creek			0151 Lima Reservoir & 0152 Long Creek (Also see 0151 Centennial Matador, 0747 Lower Ritchie Unit, 0750 Lower Ritchie SGC, 0152 3-Centennial-Mat, Current Situation)		0701 Tom Creek (Also see 0701 Tom Creek, Current Situation)

0159 L. Martinell			0159 Shineberger	0630 Red Butte	
0168 Remely			0168 Timber Butte	0632 Timber Butte (Also see 0120 Carroll-Holland, Current Situation)	
0169 Saier Ind. - SGC			0169 Saier Ind.	0633 Saier Ind.	
0171 J&M Rebich			0171 Henneberry Ridge	0634 Henneberry Ridge	
0173 J&E Rebich			0173 Gallagher Creek	0635 Gallagher	
0177 Moss			0177 Phalarope	0636 Moss	
0179 Wilson Lease			0179 Peet Rock (Also see 0713 Clyde Smith Co., Current Situation)		
0182 Meine			0182 Kennison Spring (Also see 0333 Meine Ind. SGC, Current Situation)		
0192 Clark Canyon			0192 Shoshone Cave (Also see 0709 Wellborn Ind., Current Situation)		
0193 Bell Canyon			0193 Williams-Bell Canyon (Also see 0195 Williams A, Current Situation)		
0195 Williams A			0193 Williams-Bell Canyon (Also see 0193 Bell Canyon, Current Situation)		
0198 Roe			0727 Roe Ranch (Also see 0727 Dellar Gordon, 0728 Westside, 0729 Roe Ranch SGC, Current Situation)		
0199 Rody			0199 Rody	0637 Rody	
0300 Seymore SGC				0300 Chalk Bluff (Also see 0453 Chalk Bluff Nyhart, Current Situation)	
0305 Burk A&B			0305 Burk-Rieber (Also see 0344 Rieber Current Situation)	0657 Burk	
0313 Nelson			0313 Nelson	0658 Nelson	
0320 Browns Gulch			0320 Cherry Creek-Browns Gulch (Also see 0321 Cherry Creek, Current Situation)		

TABLE 8B, page 5

Current Situation	Proposed Action				
Non-AMP	Existing AMP	Revised AMP	Proposed AMP	Non-AMP	Unallotted
0321 Cherry Creek			0320 Cherry Creek-Brown's Gulch (Also see 0320 Brown's Gulch, Current Situation)		
0327 Devil's Dancehall			0327 Devil's Dancehall	0659 Devil's Dancehall	
0328 Lazy AU, Willow Creek			0328 Birch Creek-Willow Creek (Also see 0329 Sisterson, Current Situation)		
0329 Sisterson			0328 Birch Creek-Willow Creek (Also see 0328 Lazy AU, Willow Creek, Current Situation)		
0333 Meine Ind. SGC 0334 (See below)			0182 Kennison Spring (Also see 0182 Meine, Current Situation)		
0341 Deno Creek			0341 Deno Creek	0660 Deno Creek	
0344 Rieber Allotment			0305 Burk-Rieber (Also see 0305 Burk, Current Situation)		
0353 Rochester Basin SGC			0353 Lower Rochester Basin	0661 Rochester Basin	
0355 McCullough Ind.				0355 McCullough (Also see 0356 McCullough "B" SGC Current Situation)	
0356 McCullough "B" SGC				0355 McCullough (Also see 0355 McCullough Ind. Current Situation)	
0334 Mt. Haggin Ind. SGC				0334 Mt. Haggin Ind. (Also see 0506 Current Situation)	
0421 OHS			0421 Strawberry Ridge	0662 OHS	
0428 Rice Ranches			0428 Fletcher-Moore	0663 Rice Ranches	
0453 Chalk Bluff Nyhart				0300 Chalk Bluff (Also see 0300 Seymore, SGC, Current Situation)	
0457 Bar Seven			0485 Axolotl Lakes (Also see 0466 Bachelor, 0473 Blue Lake, 0485 Granite Moore Sa., Current Situation)	0457 Bar Seven	

0460 Custodial				0460 Sun Ranch 0664 Wall Canyon	
0465 Mill Creek				0465 Mill Creek-Gustin (Also see 0467 Gustin, Current Situation)	
0466 Bachelor			0485 Axolotl Lakes (Also see 0457 Bar Seven, 0473 Blue Lake, 0485 Granite Moore So., Current Situation)		
0467 Gustin				0465 Mill Creek-Gustin (Also see 0465 Mill Creek, Current Situation)	
0469 Belmont			0469 Belmont	0665 Belmont	
0473 Blue Lake			0485 Axolotl Lakes (Also see 0457 Bar Seven, 0466 Bachelor, 0485 Granite Moore So., Current Situation)	0473 Blue Lake	
0479 Garden Creek			0479 Garden Creek	0667 Fossil Basin 0601 Garden	
0480 Tucker Creek				0480 Tucker Creek 0668 Tucker Cr.-Feely Tracts	
0482 Gilbert Sheep			0482 North Fork (Also see 0483 North Fork Current Situation)		
0483 North Fork			0482 North Fork (Also see 0482 Gilbert Sheep, Current Situation)		
0484 Quaking Aspen			0489 Benchmark (Also see 0489 Benchmark, Current Situation)		
0485 Granite-Moore South			0485 Axolotl Lakes (Also see 0457 Bar Seven, 0466 Bachelor, 0473 Blue Lake, Current Situation)	0669 Granite-Moore	
0486 Hogback			0486 Hogback	0670 Sodak Mine	
0488 Virginia City			0488 Virginia City	0671 V.C. Custodial 0672 Belle	
0489 Benchmark			0489 Benchmark (Also see 0484 Quaking Aspen, Current Situation)		
0491 Hungry Hollow				0491 Black Rock 0673 Hungry Hollow	
0498 Stone Creek			0498 Stone Creek		0674 Stone Creek
0499 Idaho Jack			0499 Idaho Jack	0682 Ruby Dam 0676 Idaho	

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Current Situation		Proposed Action			
Non-AMP	Existing AMP	Revised AMP	Proposed AMP	Non-AMP	Unallotted
0502 Wisconsin Creek			0501 Wisconsin Cr.	0502 Wisconsin Cr.	
0506				0334 Mt. Haggin Ind. (Also see 0334 Mt. Haggin Ind. SGC, Current Situation	
0516 Spring Brook			0516 Spring Brook	0677 Spring Brook	
0518 Sweetwater Basin			0518 Sweetwater Basin (Also see 0519 Sweetwater Rd., Current Situation)	0678 Lark	
0519 Sweetwater Road			0518 Sweetwater Basin (Also see 0518 Sweetwater Basin, Current Situation)		
0521 Virginia City Hill			0521 Virginia City Hill	0679 Sand Coulee	
0530 McHessor Creek			0530 McHessor Creek		0680 McHessor
0531 Copper Mt.			0531 Copper Mt. (Also see 0532 Ramshorn, Current Situation)		
0532 Ramshorn			0531 Copper Mt. (Also see 0531 Copper Mt., Current Situation)		
0533 Timber Creek			0533 Timber Creek	0681 Timber Creek	
0699 Nicholia Creek			0699 Nicholia/Rio Puerco (Also see 0700 Rio Puerco, Current Situation)	0638 Cottonwood Cr.	
0700 Rio Puerco			0699 Nicholia/Rio Puerco (Also see 0699 Nicholia, Current Situation)		0639 Rio Puerco
0701 Tom Creek					0701 Tom Creek (Also see 0154 Long Creek, Current Situation)
0702 Thomas			0702 Thomas (Also see 0716 Thomas, Current Situation)		
0706 Wheat			0706 Wheat	0640 Wheat	
0709 Wellborn Ind.			0192 Shoshone Cove (Also see 0192 Clark Canyon, Current Situation)		

0710 Allotment A			0710 Staudenmeyer (Also see 0711 Allot. B, Current Situation)		
0711 Allotment B			0710 Staudenmeyer (Also see 0710 Allot. A, Current Situation)	0641 Allotment B	
0713 Clyde Smith Co.			0179 Peet Rock (Also see 0179 Wilson Lease, Current Situation)		
0714 Wellborn			0714 Wellborn-Dell 0270 Lima Peaks (Also see 0107 Cabin Creek and Sheep Creek, Current Situation)	0642 Truax Creek 0643 Orphan	
0716 Thomas			0702 Thomas (Also see 0702 Thomas, Current Situation)		
0720 Old Whitworth			0720 Whitworth	0644 Whitworth	
0725 Horse Prairie Livestock SGC			0725 Horse Prairie Livestock (Also see 0726 Horse Prairie Livestock S-C Current Situation)	0645 Horse Prairie-Bloody Dick 0646 Horse Prairie-Station Creek 0647 Horse Prairie-North Frying Pan	
0726 Horse Prairie Livestock S-C			0725 Horse Prairie Livestock (Also see 0725 Horse Prairie Livestock SGC, Current Situation)		
0727 Dellar Gordon			0727 Roe Ranch (Also see 0198 Roe, 0728 West Side, 0729 Roe Ranch Co. SGC, Current Situation)		
0728 West Side			0727 Roe Ranch (Also see 0198 Roe, 0727 Dellar Gordon, 0729 Roe Ranch SGC, Current Situation)		
0729 Roe Ranch Co. SGC			0727 Roe Ranch (Also see 0198 Roe, 0727 Dellar Gordon, 0728 West Side, Current Situation)		
0732 Sand Dunes			0732 Sand Dunes	0648 Sand Dunes	
0734 Gilbert SGC			0734 Snowcrest	0649 Snowcrest	
0735 Kennedy Place			0735 Forsythe (Also see 0736 Forsythe Ranch SGC, Current Situation)		

TABLE 8B, page 9

Current Situation	Proposed Action				
Non-AMP	Existing AMP	Revised AMP	Proposed AMP	Non-AMP	Unallotted
0736 Forsythe Ranch SGC			0735 Forsythe (Also see 0735 Kennedy Place, Current Situation)	0650 Forsythe	
0740 Chaffin Livestock			0740 East Clover Creek	0651 Chaffin	
0741 Lichtenberg			0741 Indian Creek	0652 Lichtenberg	
0747 Lower Ritchie Unit			0151 Lima Reservoir (Also see 0151 Centennial Matador, 0154 Long Creek, 0750 Lower Ritchie SGC, Current Situation)		
0748 Medicine Lodge			0748 Medicine Lodge (Also see 0749 Medicine Lodge SGC, Current Situation)	0653 Medicine Lodge	
0749 Medicine Lodge SGC			0749 Medicine Lodge (Also see 0748 Medicine Lodge, Current Situation)		
0750 Lower Ritchie SGC			0151 Lima Reservoir (Also see 0151 Centennial Matador, 0154 Long Creek, 0747 Lower Ritchie Unit, Current Situation		
0753 Donovan SGC			0753 Bannock Pass	0654 Donovan	

SOURCE: BLM, 1979.

APPENDIX 9:

EXAMPLE OF A SOIL DESCRIPTION

The following soil description is an example of the detailed information available in the BLM Dillon Resource Area office. Also available, but not shown here, are descriptions of each slope phase of each soil taxonomic unit.

234-BORROLIC PALEARGIDS, FINE, MONTMORILLONITIC

This taxonomic unit consists of deep, clayey, well-drained soils on slightly convex to planar slopes on older, higher levels of alluvial valley fill in the broad basins and benches of the Horse Prairie and Grasshopper Creek drainages. These soils occur between elevations of 1,500 and 1,800 meters (5,000 and 6,000 feet), occupying sparsely vegetated sagebrush and grass flats and slopes adjacent to foothills. These soils have formed from old, clayey alluvium. Because of the subsoil clay content, the permeability is slow to very slow, so more water runs off in unvegetated areas. This, in addition to the dry climate and short growing season, makes these soils very susceptible to erosion when the vegetative cover, especially grasses, is removed through overgrazing, mining, or road-building activities. Many unvegetated areas have subsoil exposed at the surface. The type of clay from which these soils have formed (montmorillonite) expands when wet and shrinks upon drying, increasing the instability of the soils. The compaction hazard is severe, especially when wet. Slopes range from 0 to 30 percent.

These Borollic Paleargids are similar to Borollic Haplargids and are commonly adjacent to Borollic Haplargids, Borollic Camborthids and Aridic Argiborolls in the landscape. Borollic Haplargids have less clay in the subsoil and are commonly on a lower position in the landscape. Borollic Camborthids lack an argillic horizon and Aridic Argiborolls have a mollic epipedon.

Representative profile of a Borollic Paleargid, fine, montmorillonitic, 0 to 8 percent slope, NE1/4 SE1/4 of section 7, T. 10 S., R. 13 W.

> A1-0 to 10 cm (0 to 4 in.); pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak fine granular structure; loose; many fine and medium roots; 2 percent gravel; mildly alkaline; abrupt smooth boundary.
>
> B21t - 10 to 25 cm (4 to 10 in.); yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic parting to strong medium subangular blocky structure; hard; many thick dark yellowish brown (10YR 4/4) clay films on ped faces; many fine and common medium roots; 2 percent gravel; mildly alkaline; clear wavy boundary.
>
> B22t - 25 to 48 cm (10 to 19 in); light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard; common moderately thick dark yellowish brown (10YR 4/4) clay films on ped faces; common fine roots; 5 percent gravel; moderately alkaline; clear wavy boundary.
>
> B23tca - 48 to 58 cm (19 to 23 in.); light yellowish brown (10YR 6/4) clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard; few thin dark yellowish brown (10YR 4/4) clay films on ped faces; common medium distinct dark grayish brown (10YR 4/2) organic stains on some ped faces; common medium distinct white (10YR 8/2) soft masses of lime; common fine and few medium roots; 5 percent gravel; moderately alkaline; gradual wavy boundary.
>
> Cca - 58 cm (23 in.) ; very pale brown (10YR 7/4) loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard; many medium distinct white (10YR 8/1) soft masses of lime; few medium roots; 10 percent gravel; moderately alkaline.

The thickness of the solum and depth to the calcic horizon ranges from 25 to 60 cm (10-24 in.).

The A horizon has color value of 5 or 6 (3 or 4 moist) and chroma of 3 or 4. It is loam but includes gravelly loam and commonly has vesicular formation in the surface crust. The argillic horizon ranges in thickness from 15 to 50 cm (6-20 in.). The upper part (B21t and B22t) has color value of 5 or 6 (4 or 5 moist) and value of 4. It is clay loam or clay but also includes silty clay loam. It has strong prismatic structure grading to subangular blocky with depth and has distinct clay films on prism faces. It is mildly alkaline and usually will not effervesce with HCl. The lower part of the argillic horizon (B23tca) has color value of 5 or 6 (4 or 5 moist) and chroma of 4. It commonly has grayish to white soft masses of lime and is strongly calcareous. It is commonly clay loam but includes silt loam and silty clay loam. The Cca (calcic) horizon has color value of 5 through 7 and chroma of 3 or 4. It is strongly alkaline and is strongly calcareous. It ranges in thickness from 20 to 50 cm (8-20 in.).

APPENDIX 10: FISH HABITAT CONDITION, SPECIES, AND IMPACTS

Stream	BLM Miles	Fish Species[a]	Current Condition		Percentage Bank Erosion	Macroinvertebrates	MDFWP Class	Allotments	Comments	Projected Condition[d] by Alternative[e]					
			RIP[b]	SHR[c]						A	B	C	D	E	F
Corral Creek	0.9	BRK	S	66	--	--	V	0701	Historic grayling habitat	E	F	E	F	F	E
Tom Creek	1.3	BRK	--	97	--	--	V	0701	Good condition; historic grayling habitat	E	F	E	F	F	E
West Creek	1.1	BRK	S	82	15.0	--	V	0152, 0154	Historic grayling habitat	G	P	G	G	P	G
Red Rock Creek	0.8	CUT, BRK, GRA	S	87	--	--	III	0701, 0737		E	F	E	F	F	E
Price Creek	1.8	CUT	U	54	41.0	--	V	0040		F	F	G	P	F	G
Long Creek	3.9	CUT, BRK	U	91	33.0	--	V	0152, 0154	Grayling in the 1950s; sedimentation extreme	G	P	G	G	P	G
Jones Creek	1.1	CUT	U	61	--	--	V	0152, 0154	Sedimentation extreme; poor riparian condition	G	P	G	G	P	G
Bean Creek	1.1	CUT-BOW	U	75	--	--	V	0701	Poor riparian condition; high sedimentation	E	F	E	F	F	E
Middle Creek	0.6	?	--	82	--	--	V	0152, 0154		G	P	G	G	P	G
Crow Creek	1.4	?	U	74	53.0	--	V	0152, 0154		G	P	G	G	P	G
Piute Creek	1.5	?	U	68	49.0	--	V	0152, 0154		G	P	G	G	P	G
Odell Creek	0.4	CUT	U	81	0.1	--	III	Sheep Mtn.	Good condition, some channel damage from old road; historic grayling	F	F	G	F	F	G
Antelope Creek	0.1	BRK	--	--	0.2	--	V	0730	Historic grayling habitat	G	F	G	F	F	E
Peet Creek	1.3	CUT	U	100	22.0	--	V	0730		G	F	G	F	F	E
Big Swamp Creek	0.3	CUT, BRK	--	--	--	--	V	0142	Good condition	P	P	G	F	G	G
Rock Creek	2.0	BRK	--	--	--	--	IV	0721	Excellent condition	E	E	E	G	E	E
North Fork Big Hole	1.3	BRK, GRA	--	--	--	--	III	0742, 0744	Very poor condition; heavy livestock use	F	P	F	P	P	G

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Stream	BLM Miles	Fish Species[a]	Current Condition		Percentage Bank Erosion	Macroinvertebrates	MDFWP Class	Allotments	Comments	Projected Condition[d] by Alternative[e]					
			RIP[b]	SHR[c]						A	B	C	D	E	F
Swamp Creek	0.9	BRK	--	--	--	--	V	0616	Good condition	G	G	E	G	G	E
East Fork Blacktail	3.4	BRK, CUT-BOW	S	77	24.0	Good	IV	0167	Good condition due to protective fencing	G	G	G	G	G	E
West Fork Blacktail	2.5	BRK	S	70	5.0	--	IV	0603, 0105	Fair condition but some localized degradation due to stock use	G	G	E	G	G	E
Long Creek	0.3	CUT, RBT, BRK	--	--	--	--	IV	0013		G	G	E	G	G	E
Little Basin	0.4	CUT	U	64	28.0	Fair	V	0012	Fair condition, but improving	G	G	G	P	G	G
Little Sheep	0.2	?	S	62	5.0	--	V	0117		G	G	G	F	G	E
Ramshorn Creek	2.0	?	S	81	6.0	--	IV	0531	Historic mining area	P	F	E	P	F	E
Wisconsin Creek	0.2	?	--	--	--	--	V	0501	Historic mining problems	F	F	G	F	F	G
Alder Creek	0.1	?	--	--	--	--	IV	0671		F	F	G	F	F	G
Granite Creek	1.0	RBT, BRK	U	--	5.0	--	IV	0468, 0526	Very poor; heavy livestock use	F	P	G	F	P	G
Mill Gulch	2.5	RBT, BRN	S	--	20.0	--	IV	0456	Fair condition; heavy livestock use	G	G	E	G	G	E
Greenhorn Creek	1.3	BRN	S	--	--	--	V	0482, 0483	Excellent condition; no stock	G	G	G	G	G	G
Sweetwater Creek	0.3	BRN	--	--	--	--	V	0677	Fair condition	P	P	G	F	P	G
California Creek	1.8	?	U	--	25.0	--	V	0507	Historic mining area	F	F	G	F	F	E
Indian Creek	0.7	?	S	--	13.0	--	V	0741		G	G	G	G	G	G
Noble creek	1.5	?	--	--	--	--	V	0501		F	F	G	F	F	G
Camp Creek	2.7	RBT, BRK	S	70	9.0	Good	V	0308, 0309	Excellent condition and productive stream	G	G	G	G	G	E

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Stream	BLM Miles	Fish Species[a]	Current Condition		Percentage Bank Erosion	Macroinvertebrates	MDFWP Class	Allotments	Comments	Projected Condition[d] by Alternative[e]					
			RIP[b]	SHR[c]						A	B	C	D	E	F
Moose Creek	0.8	BRK, RBT, CUT-BOW	S	48	5.0	Exc.	V	0303	Excellent condition; good fishery	G	G	G	G	G	E
Trapper Creek	1.0	?	--	--	--	--	V	0332 0311		F	F	G	F	F	G
Cherry Creek	1.0	?	U	--	21.0	--	V	0370	Poor condition	G	F	G	F	F	E
Rock Creek	0.2	?	--	--	--	--	V	0305		G	F	G	F	F	E
Willow Creek	2.0	BRK, RBT, CUT-BOW	S	--	15.0	--	V	0321	Excellent condition; poor fishery due to granite watershed	E	E	E	E	G	E
Big Hole River	12.8	WF, NG, BRK, BRN, RBT, GRA	U	--	14.0	--	I	Various	A few tracts are in good condition, but most are poor	G	P	G	G	P	G
Bear Creek	1.1	BRK, CUT	S	--	4.0	--	V	0339	Excellent condition; very productive small stream, possible spawning habitat for Big Hole River	G	G	G	G	G	G
Jimmy New	5.6	CUT	--	--	--	--	V	0318	Fair condition; past timber sales have created problems	G	G	G	F	G	G
Jerry Creek	0.4	BRN	--	--	--	--	V	0318	Good condition	E	G	E	G	E	E
Johnson Creek	0.1	BRN	--	--	--	--	V	0318		G	G	G	F	G	G
Deep Creek	0.9	RBT, BRK, GRA, WF	U	--	20.0	--	IV	0339	Mostly good condition; some accelerated bank erosion	E	F	E	E	F	E
Seymour Creek	0.1	?	--	--	--	--	V	0300		G	G	E	F	G	E
LaMarche Creek	0.5	?	--	--	--	--	IV	0508		G	G	E	G	G	E

Stream	BLM Miles	Fish Species[a]	Current Condition		Percentage Bank Erosion	Macroinvertebrates	MDFWP Class	Allotments	Comments	Projected Condition[d] by Alternative[e]					
			RIP[b]	SHR[c]						A	B	C	D	E	F
Madison River	30	RBT, CUT, BRN, WF,NG	S	--	--	--	I	Various	About one-third of riparian condition is poor	G	G	E	F	G	E
Ruby Creek	0.2	?	--	--	--	--	III	0452	Good condition	F	F	G	G	F	E
Horse Creek	0.2	?	--	--	--	--	V	0540		F	F	G	F	F	G
Wigwam Creek	1.3	?	S	--	5.1	--	V	0503	Good condition	G	G	G	F	F	E
Hot Springs Creek	3.2	?	S	--	0.0	--	IV	0407	Good condition; very little stock use	G	F	E	F	G	E
Willow Creek	1.2	?	S	--	0.0	--	III	Non-AMP		G	G	E	G	G	E
Jefferson River	1.2	RBT, BRN, WF,NG	--	--	--	--	III	Non-AMP	Good condition; no stock use	G	G	E	G	G	E
Standard Creek	0.2	?	--	--	--	--	V	0435		G	G	E	G	G	E
South Willow Creek	0.5	?	S	--	0.0	--	V	0440		G	G	G	G	G	G
Sheep Creek	9.2	RBT, CUTBOW, BRN, WF,NG	S	92	29.0	Exc.	III	0699	Riparian condition good; bank erosion and mass wasting due to off-site factors	G	G	G	F	G	G
Unnamed Creek	1.4	BRK	S	--	6.0	--	V	0101		F	G	G	F	G	E
Deadman Creek	1.6	CUTBOW	U	103	32.0	--	IV	0001	Poor condition due to livestock use	G	G	G	G	G	E
Nicholia Creek	0.2	CUT	--	--	--	--	IV	0269		G	F	G	F	G	E
Simpson Creek	3.0	?	U	89	65.0	--	V	0741		F	F	G	F	F	G
Medicine Lodge Creek	1.3	CUTBOW BRK	--	--	--	--	IV	0126	Poor condition due to stock use	F	P	G	P	P	G
Erickson Creek	0.3	?	--	--	--	--	V	0126		F	P	G	P	P	G
Craver Creek	1.2	?	S	63	0.0	--	V	0101, 0108	Excellent condition; little or no stock use	E	E	E	G	E	F
Schwartz Creek	0.2	BRK	U	88	67.0	--	V	0758		P	P	G	P	P	G

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Stream	BLM Miles	Fish Species[a]	Current Condition		Percentage Bank Erosion	Macroinvertebrates	MDFWP Class	Allotments	Comments	Projected Condition[d] by Alternative[e]					
			RIP[b]	SHR[c]						A	B	C	D	E	F
Dad Creek	0.2	BRK	--	--	--	--	V	0108, 0757	Extremely poor condition, due to stock use	F	P	G	P	P	G
Muddy Creek	3.5	?	U	125	60.0	Good	V	0039	Conditions improving, but very frail and may need physical improvements. Adversely affects Sheep Creek.	F	F	G	P	P	G
Farlin Creek	1.4	?	U	137	35.0	--	V	0191		P	P	G	F	F	G
Dyce Creek	6.3	CUT	S	80	33.0	Exc.	V	0037	Very good condition	G	G	G	G	G	E
Taylor Creek	2.6	BRK	U-S	90	18.0	Exc.	V	0034	Fifty percent good and 50% poor due to grazing	F	F	G	F	F	E
Grasshopper - 1	0.1	RBT, BRK, BRN	--	--	--	--	IV	0015, 0120, 0121,	Riparian condition good; serious erosion due to mining	G	G	G	F	F	G
Grasshopper - 2	1.5	?	--	--	--	--	IV	0026	Riparian condition good; serious erosion due to mining	G	G	G	F	F	G
Horse Prairie Creek	0.8	BRK	U	72	50.0	--	III	0019	Poor condition due to grazing	F	P	E	P	P	E
Maiden Creek	0.1	?	U	--	89.0	--	V	0016	Poor condition due to grazing	P	P	G	P	P	G
Jeff Davis Creek	0.7	BRK	U	73	22.0	Good	V	0016	Riparian condition good and recovering from mining	G	P	G	G	P	E
Black Canyon Creek	1.2	BRK	U	99	46.0	Good	IV	0020	Poor condition due to grazing	F	P	G	F	F	G
Trail Creek	0.1	BRK-CUT	--	--	--	--	IV	0004		G	G	E	F	G	E
Bloody Dick Creek	0.8	BRK, RBT	S	71	25.0	--	IV	0648	Fair condition; some grazing problems	P	P	G	F	P	G
Bear Creek	1.5	BRK, CUT	U-S	62	20.0	--	V	0018	Mostly in good condition	G	G	E	G	G	E
Scudder Creek	1.0	?	U	101	60.0	--	V	0037		P	P	G	P	P	G
Rattlesnake Creek	0.7	?	--	--	--	--	IV	0005, 0006		G	F	G	F	G	G

Stream	BLM Miles	Fish Species[a]	Current Condition		Percentage Bank Erosion	Macroinvertebrates	MDFWP Class	Allotments	Comments	Projected Condition[d] by Alternative[e]					
			RIP[b]	SHR[c]						A	B	C	D	E	F
Rawhide Creek	1.0	?	U	129	73.0	--	V	0017		F	F	P	F	F	G
Shennon Creek	2.0	?	U	131	42.0	Fair	V	0019	Extremely poor condition due to grazing	G	P	G	F	F	G
Trapper Creek	0.8	NG,BRK CUT	U	80	17.0	--	V	0018	Mostly good condition	F	F	G	F	F	E
Frying Pan Creek	0.8	BRK, CUT	S	78	22.0	--	V	0018	Riparian condition far below potential due to grazing	G	G	G	G	G	E
South Divide Creek	0.9	?	U	68	24.0	Good	V	0130	Poor condition due to grazing	G	F	G	G	F	E

SOURCE: BLM, 1979.

NOTE: Dash indicates no data are available.

a. WF = whitefish; RBT = rainbow trout; CUT = cutthroat trout; BRK = brook trout; BRN = brown trout; GRA = grayling; CUTBOW = cutthroat and rainbow trout cross; NG = nongame.

b. Riparian rating: U = unsatisfactory; S = satisfactory.

c. SHR = stream habitat rating, after rating method devised by Dale J. Pfankuch, U.S., Department of Agriculture, Forest Service, Stream Reach Inventory and Channel Stability Evaluation, by Dale J. Pfankuch (Missoula, MT: Northern Region, 1975).

d. E = excellent; G = good; F = fair; P = poor.

e. Alternative A is the proposed action; B is the limited action alternative; C is the alternative to improve watershed values and wildlife habitat; D is the accelerated livestock forage development alternative; E is the no action alternative; and F is the alternative to eliminate livestock grazing from public lands.

APPENDIX 11: RECREATION AREAS AND USE ON PUBLIC LANDS IN THE EIS STUDY AREA

Recreation Area Name	Map Designation	Type of Recreation Area[a]	Major Recreation Activities[b]	Total Recreation Visits by Area[c]	Period of Use[d]
Madison River Corridor					
South Madison	R-1	D	Oa Fst Flt	7,200	Spring Summer Fall
West Madison	R-2	D	Oa Fst	3,300	Spring Summer Fall
Bear Trap (Red Mountain)	R-3	D	Oa Fst	3,550	Spring Summer Fall
Ennis Lake Boat Access Site	R-4	SD	Oa Fst Flk Hwf Flt	260	Spring Summer Fall
Madison River Parcels (7)	R-9	UD	Oa Fst Hwf Flt	1,940	Spring Summer Fall
Ennis Lake Slough	R-10	UD	Hwf	150	Spring Summer Fall
Upper Bear Trap	R-11	UD	Oa Fst Flk Ws	6,000	Spring Summer Fall
Bear Trap Canyon (Instant wilderness study area)	R-12	UD	Oa Fst Hk Hbg Flt	3,150	Spring Summer Fall Winter
Red Mountain Bridge South	R-13	UD	Oa Fst	1,600	Spring Summer Fall

Recreation Area Name	Map Designation	Type of Recreation Area[a]	Major Recreation Activities[b]	Total Recreation Visits by Area[c]		Period of Use[d]
Bear Trap Canyon Access	R-14	UD	Oa Fst Ws	5,700		Spring Summer Fall
Red Mountain Bridge North	R-15	UD		2,930		Spring Summer Fall
Madison River Corridor Subtotal					35,810	
Big Hole River Corridor						
Dickie Bridge	R-6	SD	Oa Fst	1,450		Spring Summer Fall
Divide Bridge	R-7	SD	Oa Fst Flt	3,600		Spring Summer Fall
Ponderosa	R-8	SD	Oa	900		Spring Summer Fall
Buffalo Jump	R-16	UD	Oa Fst	100		Spring Summer Fall
Sodak Mill	R-17	UD	Oa Fst Hwf	400		Spring Summer Fall
Goat Mountain	R-18	UD	Oa Fst Flt	900		Spring Summer Fall
North Bank	R-19	UD	Oa Fst	350		Spring Summer Fall
Dewey Roadside Rests	R-20	UD	Oa Fst	1,100		Spring Summer Fall

Recreation Area Name	Map Designation	Type of Recreation Area[a]	Major Recreation Activities[b]	Total Recreation Visits by Area[c]	Period of Use[d]
Sawlog Creek	R-21	UD	Oa Flt Fst	180	Spring Summer Fall
Pintlar Creek	R-22	UD	Oa Fst Flt	220	Spring Summer Fall
Big Hole River Corridor Subtotal				9,200	
Other Areas					
Ruby Reservoir	R-5	SD	Oa Flk Ws	3,700	Spring Summer Fall
Axolotl Lakes	R-23	UD	Oa Flk Hbg	300	Spring Summer Fall Winter
Ruby Mountain	R-24	UD	Oa Hbg Hug	275	Summer Fall Winter
McCartney Mountain	R-25	UD	Oa Hbg Hug	350	Summer Fall Winter
Camp Creek	R-26	UD	Oa Fst	400	Summer Fall Winter
Humbug Spires (Instant wilderness study area)	R-27	UD	Hk Fst Rcl Hbg Hug Bpk Oa	410	Spring Summer Fall Winter
Dewey Canyons	R-28	UD	Oa Hbg	195	Summer Fall Winter

Recreation Area Name	Map Designation	Type of Recreation Area[a]	Major Recreation Activities[b]	Total Recreation Visits by Area[c]	Period of Use[d]
Jimmy New Creek	R-29	UD	Oa Hbg Hug	1,400	Summer Fall Winter
West Big Hole	R-30	UD	Oa Hbg	60	Spring Summer Fall
Red Butte	R-31	UD	Hbg	55	Fall Winter
Bannack Area	R-32	UD	Oa Fst	3,400	Spring Summer Fall Winter
Upper Clark Canyon	R-33	UD	Hbg	445	Fall Winter
Blacktail Mountains	R-34	UD	Hbg	525	Fall Winter
Bloody Dick Creek	R-35	UD	Fst Oa	25	Summer Fall
Big Hollow	R-36	UD	Oa	150	Summer Fall
Agate Mountain	R-37	UD	Hbg Hug Oa	165	Spring Summer Fall
Black Canyon	R-38	UD	Oa Hbg	65	Spring Summer Fall
Divide Creek	R-39	UD	Oa Hbg Hug	130	Spring Summer Fall
Bannack Pass	R-40	UD	Oa	50	Spring Summer Fall Winter

Recreation Area Name	Map Designation	Type of Recreation Area[a]	Major Recreation Activities[b]	Total Recreation Visits by Area[c]	Period of Use[d]
Ayers Canyon	R-41	UD	Oa Hbg	75	Spring Summer Fall Winter
Indian Creek	R-42	UD	Oa Hbg Hug	250	Spring Summer Fall Winter
Big Sheep Creek	R-43	UD	Oa Fst Hbg	2,980	Spring Summer Fall Winter
East Fork Little Sheep Creek	R-44	UD	Oa Fst Hbg	250	Summer Fall
West Fork Blacktail Creek	R-45	UD	Oa Fst Hbg	180	Spring Summer Fall Winter
East Fork Blacktail Creek	R-46	UD	Oa Fst Hbg	1,250	Spring Summer Fall Winter
West Creek	R-47	UD	Hbg	125	Fall Winter
Lima Reservoir	R-48	UD	Oa Wo Hbg Hwf	500	Fall Winter
Snowshoe Pass	R-49	UD	Hbg	150	Fall Winter
Price Peet Road	R-50	UD	Oa Hbg Fst	150	Summer Fall Winter

Recreation Area Name	Map Desig- nation	Type of Recrea- tion Area[a]	Major Recrea- tion Activi- ties[b]	Total Recreation Visits by Area[c]	Period of Use[d]
Centennial Mountains (Instant wilderness study area)	R-51	UD	Oa Fst Hbg Hug Bpk Wo Hk	75	Summer Fall Winter
Grand Total of Recreation Visits				63,095	

SOURCES: Donald C. Baty, Recreational Use and Resource Analysis of BLM Lands Within the Madison River Corridor (Boulder, CO: Western Interstate Commission for Higher Education, 1977); Andrew C. Epple, Recreation in the Dillon Resource Area (Boulder, CO: Western Interstate Commission for Higher Education, 1977); U.S., Department of the Interior, Bureau of Land Management, "The Recreation Area Inventory System (RAIS)," Dillon, MT: 1978. (Typewritten.)

a. D = developed facilities; SD = semideveloped facilities; UD = undeveloped (no facilities).

b. Hbg = big game hunting; Hug - upland game hunting; Hwf = waterfowl hunting; Rcl = rockclimbing; Bpk = backpacking; Wo = wildlife observation; Fst = stream fishing; Flk = lake fishing; Hk = hiking; Flt = floating; Ws - water sports (swimming, waterskiing, powerboating); Oa = other activities (camping, picnicking, rock and mineral collecting, sightseeing).

c. A recreation visit is defined as one person engaged in one activity for all or any portion of a day.

d. Spring = May 1 to May 31; Summer = June 1 to August 31; Fall = September 1 to October 14; Winter = October 15 to April 30.

APPENDIX 12: EFFECTS OF ALTERNATIVE C -- IMPROVED WATERSHED VALUES AND WILDLIFE HABITAT

* Grazing System	Allotment Name	Allotment Number	Fence (miles)	Fence Removal (miles)	Acres to Exclude From Livestock	Sagebrush Control		Plowing and Seeding (acres)	AUM Reductions from Initial Stocking Level			** Overlap	Season of Use	Total Reductions (AUMs)	Proposed Stocking Level (AUMs)
						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
Existing AMPs															
RR	Pine Creek	0001									75[j,d]		6/15-10/15	75	330
RR	Selway	0004											7/1-7/30; 8/1-9/15	0	118
RR	Stonehouse	0005							647		100[c]	100	Argenta Springs, McDowell, Ermont, 5/10-6/25 and 11/25-1/10; rest, 6/15-9/15	647	1,338
RR	Armstead-Upper Sage	0007							502		328[e]	172	5/15-12/31. Pasture A, 6/1-8/20; pasture B, 6/6-8/30	658	1,232
RR	Mosman	0011											6/1-8/1;9/1-10/15	0	514
RR	Matador	0012							2,136				4/15-12/31	2,136	2,770
RR	Gallagher Mtn.	0013	12.0	2.5	4,860[a,b]				200		460[a,b,j] 127[e,j]	0	5/15-6/15, Dry Mast.Warm Springs pastures; rest, 8/1-8/30	787	3,390
RR	Barretts	0014											5/10-8/9; 8/10-11/24	0	208
RR	Bannack	0015	5.0		50				183	109			5/1-6/29. Two years' rest after use.	292	219
RR	Coyote Flats	0017							143				6/15-6/30;8/1-9/1	143	257
AR	Bear Creek	0018									185[j,b,e]		Rest 8/15-9/30	185	186
RR	Rape Creek	0019									265[j]		6/15-7/15; 9/1-9/30	265	641
RR	Tallent	0027									188[e]		6/5-12/1	188	277
RR	Baldy Mountain	0037									350[d,j]		5/10-7/1; 7/1-10/15	350	953

RR	Muddy Creek	0039							186				6/15-11/5	186	1,463
RR	Price Creek	0040	5.0		2,650[g]						685[j,g,d]		7/10-9/1; 9/2-10/25	685	588
RR	Meadow Creek	0042											Summer-fall	0	184
RR	Conover	0016		2.0	4,035[m,a,b]						286[m,a,b]		nonuse	286	0
RR	Robb Creek	0167							39		233[d,i]	39	8/1-8/30	233	234
RR	Iron Rod	0268							35				5/16-10/15. Add rest to Bulldog and Yarborough pastures	35	534
RR	Copp-Jackson	0301									49[d]		6/1-10/15	49	148
RR	Moose Creek	0303							196		120[d]	120	5/21-11/30	196	484
RR	Greenstone	0317	5.0						161				8/15-10/20	161	55
RR	Jerry Creek	0318	0.4[r]	2.5	12,840[d]						856[d,i]		nonuse	856	0
RR	Rochester Basin	0324						disc 500		646	240[d]	240	6/1-10/15	646	1,292
RR	Deer Canyon	0749											7/1-10/15	0	30
Revised AMPs															
AR,RR	Clark Canyon	0002	1.0		142				185	427	124[d] 304[b,e,f]	196	5/15-2/28 (includes more rest)	844	939
RR	Junction Seeding	0009							29				6/24-7/15; 10/15-11/17	29	243
RR	Crooked Creek	0010	1.0		100								6/1-7/30; 8/15-9/4. Rest 5/1-6/1	0	373
RR	Chinatown	0016							101	220	150[c]	60	6/1-8/10	411	251

*RR = rest-rotation grazing; DR = deferred rotation grazing; D = deferred grazing; AR = alternate rest grazing; SDHI = short-duration, high-intensity grazing; S = seasonal grazing (part of the year specified individually for non-AMP allotments); U = unlicensed, unallotted land not being used for grazing.

** When watershed and wildlife both identified AUM reductions in the same geographic area, only one reduction, whichever was greater, was made to avoid double counting. The "overlap" column represents the AUMs that otherwise would have been counted twice.

* Grazing System	Allotment Name	Allotment Number	Fence (miles)	Fence Removal (miles)	Acres to Exclude From Livestock	Sagebrush Control		Plowing and Seeding (acres)	AUM Reductions from Initial Stocking Level			** Overlap	Season of Use	Total Reductions (AUMs)	Proposed Stocking Level (AUMs)
						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
RR	North Black Canyon	0020	0.75	0.75							427[a,j]		7/1-9/15; 9/16-11/1	427	712
RR	Leadman-Mansfield	0021							85				6/15-7/15; 11/16-1/15	85	310
RR	Dixon Mountain	0022			635[r]				111		42[r]	42	5/10-6/9; 10/1-12/31	111	149
RR	Trail Creek	0025	1.3					350 (interseed with native grasses)					6/15-8/30	0	34
RR	Anderson Field	0026	1.5						51				5/1-1/28(more rest added)	51	989
RR	Snowline	0029									540[c,d,q]		Summer-fall (add a rest in pasture 8)	540	1,449
RR	Reservoir Creek	0030	1.5						240	458	125[d]	36	6/15-7/30; 8/15-9/30	787	588
RR	PHW	0031	4.0	1.75	4[i]	900 (40 ft. strips unsprayed)		200 (chisel/interseed)			375[j,d]		5/15-8/30 (more rest)	375	741
RR	Exchange Pasture	0032						800 (chisel)		135			6/15-7/15; 7/15-9/15	135	271
RR	Cross Allotment	0033				800 (40 ft. strips unsprayed)		(chisel)			100[p]		6/15-8/30; 9/1-10/15 with 2 years' nonuse	100	320
RR	Red Mine	0034	0.5							150			6/15-9/15	150	320
RR	Brenner Seeding	0035	2.0					160 (chisel)		140			6/1-6/30; 9/1-9/30	140	277
RR	Buck Creek	0038							455				6/1-7/15;7/15-8/30	455	663

RR	Rock Creek	0041										5/20-7/1	0	140
RR	Camp Creek	0308						295				5/21-10/3	295	3,260
RR	Lelow Basin	0335										6/1-6/30;8/6-9/30	0	176
RR	Sweetwater	0471								300[e,j]		5/20-10/19	300	981
AR	Scudder Creek	0028								110[d,n]		5/21-6/3	110	111
	Subtotal, Existing and Revised AMPs							5,685	2,285	7,144	1,005		14,109	30,341
Proposed AMPs														
RR	Little Divide	0101	4.0					32				7/1-11/15	32	472
RR RR	Morrison-Sweeney Cabin Creek	0102 0102	1.0					15	86			7/1-8/1; 8/1-8/15; 8/15-9/15	101	241
RR	Hansen Creek	0108						78	735	571[j,n]	571	4/1-6/1;6/1-7/1; 11/1-2/1; 5/16-8/1; 8/1-10/15	813	1,758
RR	Pipe Organ Rock	0110										5/15-11/30	0	84
RR	Red Canyon	0113	0.25[r]					19				5/10-6/30; 8/10-9/22	19	332
RR,D	Bill Hill Creek	0114										6/10-7/15; 12/1-2/1	0	220
RR	Pass Creek	0119	2.0							329[e,j]		7/1-10/15	329	330
RR	Taylor Creek-Buffalo Creek	0122						171	173	65[j]	65	5/30-6/25; 9/15-10/11	344	346
RR	Huntsman	0123										5/6-9/30	0	331
RR	Cedar Creek	0124					400	182	39	77[o]	77	5/20-6/30; 9/15-11/1	221	78
RR	Ellis Peak	0126	5.0					139				7/1-9/30	139	325

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** When watershed and wildlife both identified AUM reductions in the same geographic area, only one reduction, whichever was greater, was made to avoid double counting. The "overlap" column represents the AUMs that otherwise would have been counted twice.

* Grazing System	Allotment Name	Allotment Number	Fence (miles)	Fence Removal (miles)	Acres to Exclude From Livestock	Sagebrush Control		Plowing and Seeding (acres)	AUM Reductions from Initial Stocking Level			** Overlap	Season of Use	Total Reductions (AUMs)	Proposed Stocking Level (AUMs)
						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
RR	Big Spring Gulch	0129	0.4						61	202			5/15-6/25 11/1-12/31	263	395
RR	South Black Canyon	0130	2.5								42[a]		7/1-9/30	42	255
RR,AR	Frying Pan	0131	5.5						27	112			5/10-10/31	139	197
RR	Knox	0136							139	273	480[a,e,j]	412	7/1-11/30	480	479
RR	Bull-Heifer Cr.	0137					110						6/15-7/15; 8/15-10/30	0	62
RR	Kent Price Canyon	0138							207				6/15-10/31	207	111
RR	Mayberry	0143	6.0						60	796			6/1-7/15; 7/16-7/30	856	1,519
RR	Simpson Creek	0158		1.5					5	220	225[j]	225	6/1-9/30(apply RR to pastures 6 and 7)	225	876
RR	Phalarope	0177							216	282	424[f,h]	424	East, 6/15-8/1; 8/2-9/5,rest	498	530
RR	Peet Rock	0179	1.0						70		80[h]	70	6/15-7/10; 9/1-11/15; rest	80	156
RR	Bell Ranch	0197							156	39			7/1-8/1;8/1-9/15	195	79
RR	Rody	0199	2.5						14	63	103[e]	63	3/1-2/28	117	119
RR	Four Eyes	0269	1.0										5/15-11/30	0	292
RR	Lima Peaks	0270								61	50[d,e,m]	50	6/16-10/15	61	175
RR	Bradley	0302											6/1-7/1;10/1-10/15. Non-use full 3 years.	0	36

RR	Burk-Reiber	0305							31				6/1-6/30; 10/1-10/30	31	42
RR	Glendale Common	0311	2.6		480[i,r]						33[i,r]		6/1-6/30; 10/1-10/15	33	177
	Maiden Rock	0312	0.25						3	9	27[m]	12	nonuse	27	0
RR	Garrison	0314	1.0		3,914				279	55	25[e]	25	7/1-7/31;8/1-8/31	334	166
RR	Richards	0315								39			6/1-6/30; 10/1-10/30	39	77
RR	Redfern	0316											7/1-10/10	0	93
RR	Browns Cherry Creek	0320				1,200 (40 ft. strips)			90	30			6/1-6/30; 10/1-11/1	120	54
RR	McCartney Mtn.	0323	7.0		1,690				81	470	60[d,m]	60	5/1-7/15; 8/15-9/14	551	1,798
RR	Tungsten Mill	0326	2.25							48			5/18-6/20; 10/1-10/15	48	97
RR	Birch Creek-Willow Creek	0328	1.50										3 years' nonuse	0	290
RR	Skeeters	0332							16				6/1-6/15; 12/1-12/15	16	25
RR	Seven Springs-Big Hole	0337	1.50							53			6/1-7/1; 10/1-11/15	53	106
RR	Deno Creek	0341									30[d]		6/1-7/10; 9/15-10/30	30	26
RR	Limekiln	0342								21			6/20-7/15; 10/1-11/1	21	41
RR	Twin Adams	0347							6				4/15-5/15; 8/15-9/15	6	66
RR	Georgia Gulch	0348	4.0				512			57	57[a]	57	6/15-9/14	57	115

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
RR	Seyler Pasture	0354	2.0							206			5/10-5/31; 10/16-12/15	206	466
	Sparrow Ditch	0377			288[d]				36		80[d]	36	nonuse	80	0
RR	Shaw Basin	0433	1.0	1.0						32	36[c]	32	6/15-9/15	36	38
RR	Kountz	0443	0.75								30[a]		7/1-10/14	30	152
RR	Wallace Peak	0447	1.25										7/1-10/1 (more rest)	0	100
RR	Granite Creek	0468											6/1-9/30	0	75
RR,AR	Belmont	0469	1.25							226			6/1-10/15; 2/15-6/15	226	451
AR	Garden Creek	0479	11.0							214	428[c,e,j,k]	214	7/1-10/15	428	429
RR	Virginia City	0488	1.5										6/15-9/14	0	197
RR	Benchmark	0489	0.5	0.5									5/25-11/30	0	165
RR	Barton Gulch	0490											7/15-8/15; 8/15-9/15;rest	0	52
RR	Davey Creek	0497	2.25								100[b,d,e,j]		6/1-10/1	100	218
RR,D	Stone Creek	0498	4.50		1.0						161[e,j]		7/15-9/1; 9/1-10/15;rest	161	136
RR,AR	California Creek	0507							11	65	90[d,j,k]	76	6/15-9/30; 8/15-9/30	90	91
RR	Dry Lakes	0526	0.5								131[d,e,j]		6/1-10/30; 6/1-10/15	131	152
RR,DR	Copper Mountain	0531	1.25		377[i]						35[b,e,i]		5/20-10/19	35	123
RR,DR	Timber Creek	0533	1.5							107	89[e,k]	89	6/9-10/15 RR on Taylor Pasture	107	406
AR	Nicholia	0699	2.8						215	208	260[j,m]	260	5/15-7/1	423	622

RR,AR	J. Thomas	0702	1.75							85	44[e,k]	20	6/15-8/15; 8/15-11/15 (east pasture)	109	145
RR	Wolfe	0703	1.0						5	57			5/15-7/15; 8/15-10/30	62	113
RR	Fish Creek	0708	9.2		240[g]						257[d,g]		6/15-8/1; 8/1-9/30	257	847
RR	Welborn (Dell)	0714							17	85			5/15-7/15; 8/15-10/20	102	162
RR	Horse Prairie Livestock	0725	0.5						216		128[d,e,j]	128	5/20-9/5	216	85
RR	Roe Ranch	0727	3.0										7/1-10/15	0	417
RR	Jones-Peet	0730	6.75		160[i]				94		58[i]	58	7/1-10/15	94	137
RR	Forsythe	0735	3.25	0.75	650[g]					347	258[g]	258	6/1-11/30; 7/1-9/30	347	694
RR	Cocanougher	0738	2.1		40[g]						2[g]		6/1-9/30	2	37
RR	East Clover Creek	0740								80			6/15-10/15	80	238
RR	Indian Creek	0741	2.0										6/15-8/1; 8/1-8/15; 8/15-9/30		331
RR	Taylor Creek	0745	3.5							23			6/1-9/30	23	46
RR	Briggs-Medicine Lodge	0748	1.5						260	304	120[c,j]	101	6/15-7/15; 7/15-8/15; 8/15-10/15	583	893
RR	Bannock Pass	0753											6/15-9/1	0	69
RR	Dad Creek	0758							10	9			7/1-9/15	19	15
RR	Porcupine Canyon	0107							43	157	175[e,j]	175	6/1-6/30; 10/1-12/31	200	258

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
DR	Weldon Buhler	0109											6/1-6/21; 11/1-11/11		45
DR,AR	Antelope Butte	0118	0.7										7/1-1/15	0	91
	Lemhi Pass	0145			$2,307^{c,k}$					33	$78^{b,k}$	33	nonuse	78	0
	Matador Blacktail	0147	2.75		$8,456^{b,c,d,e}$				5		$176^{b,c,d,e}$	5	nonuse	176	0
AR	Radio-TV Tower	0150									$194^{b,e}$		3/20-11/11	194	194
	Long Creek	0152	1.5		170				295		$219^{b,e,i,}$ $1,384^{l,b,e,i}$	295	nonuse	1,603	0
	Maiden Creek	0156	1.3		670				31		$89^{c,i}$	31	nonuse	89	0
	Burns Mountain	0160											5/1-6/1; 10/15-12/6	0	153
RR	Coyote Creek	0165							22	40			6/15-7/15	62	80
RR	Henneberry Ridge	0171							9				7/25-10/15	9	144
RR	Ruby Dell	0172	2.5										6/25-7/16; 10/1-10/25	0	557
DR	Gallagher Creek	0173							21				10/1-10/30	21	42
DR	Kennison Spring	0182	1.0						11		32^{c}		6/1-6/15; 10/1-2/28	43	93
RR	Shoshone Cove	0192 0709							41	47			5/15-9/15	88	95
DR,D	William Bell Canyon	0193 0195	6.0						205	137	$427^{b,e}$	396	5/20-10/15	373	794
	Preacher Creek	0404		744						31	$92^{b,d,i}$	31	nonuse	92	0
DR	Strawberry Ridge	0421	6.0								$115^{b,c,e}$		7/1-8/31; 9/1-10/31	115	115
DR	Ballard	0456	2.0		$600^{a,i}$					42	$85^{a,c,e,i}$	42	8/15-9/30	85	42
DR	North Fork	0482											5/1-6/10; 11/1-2/15	0	222

DR,RR	Axolotl Lakes	0485	7.5	1.5^r	884^r						97^r		7/1-10/1	97	421
DR	Rock Creek	0512											3/1-4/30; 6/1-9/30; 12/1-2/28	0	810
DR	Spring Brook	0516	1.0						22	74			6/1-11/1	96	837
RR	Whitworth	0720											7/1-9/30	0	132
DR	Sand Dunes	0732											7/1-10/14	0	109
DR	Snowcrest Ranch	0734											7/1-7/15; 9/15-10/14	0	117
AR,RR, D	Big Hole Road	0135	2.75										5/20-6/20; 11/1-4/30	0	167
AR	Rocky Hills	0148							575	179 Windmill Pasture	$278^{c,j}$	227	5/1-6/20; Windmill Pasture, 6/1-7/20	805	804
AR,D	Shineberger	0159						40 (chisel)					7/15-9/30	0	211
	Dry Boulder	0236			518						$25^{d,i}$		nonuse	25	0
AR	Lost Creek	0322											4/1-5/5	0	56
AR	Devil's Dancehall	0327						100 (interseeding)					4/15-6/1	0	68
	Quartz Hill	0343	0.25		$1,023^d$						$55^{d,e,n}$		nonuse	55	0
AR,D	Alder Creek	0351	2.0							40			6/15-7/30; 10/1-11/30	40	79
	Mill Creek	0475	2.6								$98^{a,b,d,e,i}$		nonuse	98	0
AR	Brandon Pasture	0481									29^c		6/1-6/16	29	22
AR	Hogback	0486								37			4/1-6/1	37	37

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
AR	Rattlesnake	0510							19	55			6/15-7/1	74	54
AR,D	Wall Creek	0522	3.75		$706^{i,r}$						$73^{i,r}$		6/1-10/31	73	72
AR,D	Middle Fork	0525	0.5								268^{j}		6/1-11/30	268	181
AR,D, DR	McHessor Creek	0530	35		$1,420^{b,e,i}$				11		$35^{b,i}$	11	7/1-10/15	35	62
SDHI	Lower Rochester	0353											4/15-6/15	0	146
AR	Twin Lakes	0104									26^{k}		7/1-9/30	26	27
D	Frenchie-Carroll-Holland	0120	6						80				11/15-12/31	80	587
	Lima Reservoir	0151	5.5		$6,163^{g}$				95		$1,161^{g}$	95	nonuse	1,161	0
D	Buzztail	0161							8				10/1-2/28	8	48
D	Timber Butte	0168											9/15-9/30	0	501
AR	Saier Ind.	0169											9/1-10/1	0	102
D	Nelson	0313											10/2-10/17	0	95
RR	Gneiting	0319							93		72^{m}	72	6/15-7/15; 8/15-9/30	93	27
D	Logan Smith	0345											10/16-11/15	0	150
	Windy Pass	0385			833						$42^{b,d,e,i}$		nonuse	42	0
RR	Revenue Common	0407	3.5		$1,076^{b,d}$						$142^{b,d}$		6/9-10/15	142	164
D,RR	Fletcher-Moore	0428											6/15-9/14	0	213
D	Bryan	0459	0.50		20^{i}				2		10^{i}		8/1-10/15	12	110
	Idaho Jack	0499	4.25		$4,799^{c}$						$247^{b,c,i}$		nonuse	247	0
D	Wisconsin Creek	0501									87^{c}		8/15-10/14	87	83

D	Sweetwater Basin	0518											6/15-7/15; 8/15-9/30	0	107
D	Virginia City Hill	0521	1.25								173[e]		6/3-11/19; 5/20-11/19	173	155
D	Wheat	0706											11/15-12/15	0	39
RR	Staudenmeyer	0710								261			6/15-8/1; 8/1-9/30	261	522
D	Small Horn Can.	0722											8/4-10/15	0	43
Subtotal, Proposed AMPs									4,549	7,044	10,969	4,796		17,766	31,356
ion-AMPs															
S	Antelope Creek	Unlsd.											6/1-10/30		9
S	Birch Creek	Unlsd.											6/1-10/15	0	5
S	Boner Knob	Unlsd.											5/1-10/31	0	2
S	Buckwheat	Unlsd.											6/1-10/30	0	5
S	Bufflehead	Unlsd.											6/1-11/30	0	6
S	Butch Hill	Unlsd.											6/1-11/30	0	6
S	Cameron Bench	Unlsd.											5/1-11/30	0	6
RR	Casey	Unlsd.	1.25	0.75									5/15-10/15 (Place in Exchange Pasture RR)	0	16
S	Checkerboard	Unlsd.											6/1-10/31	0	9
S	Cherry Creek	Unlsd.											5/1-10/31	0	7
S	Chokecherry	Unlsd.											6/1-9/30	0	2

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S	Condor	Unlsd.											5/1-11/30	0	4
S	Corral Creek	Unlsd.											6/1-11/30	0	36
S	Dickie	Unlsd.											5/1-10/31	0	11
S	Dry Hollow	Unlsd.											5/1-11/30	0	7
S	Ennis Lake	Unlsd.											7/1-3/31	0	2
RR	Flying N	Unlsd.											6/15-6/30;8/1-9/1 (fence into Coyote Flats AMP)	0	91
S	Harrison	Unlsd.											8/1-11/30	0	13
RR	Jackrabbit	Unlsd.	2.5	2.0									6/1-7/15;7/16-9/30.(fence into Mayberry proposed AMP)	0	27
S	Johnny Gulch	Unlsd.											N/A	0	2
S	Kidd	Unlsd.											10/1-5/31	0	9
S	Lima	Unlsd.											5/1-12/30	0	8
S	Little America	Unlsd.											5/1-11/30	0	37
S	London Hills	Unlsd.											6/1-9/30	0	4
S	Miner Creek	Unlsd.	0.4	0.3									6/21-9/30 (fence into C&H allotment)	0	11
S	Monida	Unlsd.											5/1-11/30	0	28
S	Moose Creek	Unlsd.											5/1-10/30	0	38
S	Mt. Humbug	Unlsd.											6/1-9/30	0	15
S	Mule Shoe	Unlsd.											10/1-10/30	0	3
S	Mustang	Unlsd.											8/1-11/30	0	45

RR	Ruddy Duck	Unlsd.	2.1		40						9^j		nonuse	9	7
S	Shepherd Mtn.	Unlsd.											N/A	0	4
S	Spokane	Unlsd.											5/1-10/30	0	6
S	Steamboat Rock	Unlsd.									50^j		N/A	50	1,437
RR	Sugarloaf Mtn.	Unlsd.	0.75	0.25									5/18-6/20;10/1-12/15(fence into Tungsten Mill proposed AMP)	0	7
S	Trapper Creek	Unlsd.											5/1-11/30	0	13
S	Triangle	Unlsd.											5/1-11/30	0	6
S	Tumbleweed	Unlsd.											5/1-11/30	0	7
S	Warm Springs	Unlsd.	0.5		280						17^c		nonuse	17	0
AR	Hildreth	0103	1.0										11/1-2/28	0	98
S	Anderson	0105	0.2^r								35^i		7/1-11/30	35	136
S	Bar OK	0106											7/1-9/30	0	51
S	Selway	0111											6/1-11/30	0	17
	Bjorni	0112	1.0		70					9			nonuse	9	0
S	Lost Custodial	0115									17^j		5/1-11/30	17	40
S	Huntsman	0125											3/1-2/28	0	53
S	Hildreth Lvst.	0127	0.5		40						22^j		5/15-11/30	22	82
S	G&L Ranches	0128											6/1-11/30	0	6
S	Erb	0132											5/15-11/30	0	128
S	Hayden	0134											5/15-12/30	0	36
S	K-6	0139											5/15-11/30	0	8
S	Arlo Jones	0140											2/1-6/1	0	76

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S	Johnson Bros.	0141	1.0		160						38[i]		nonuse	38	0
S	Hirschey	0142									35[j]		8/1-10/30	35	26
S	Magpie Trail Gulch	0144											6/1-6/30	0	45
S	Matador S.G.C.	0153	2		95						42[g]		5/1-11/30	42	173
S	L Diamond	0155											5/1-11/30	0	133
S	Long Creek	0157									41[d]		nonuse	41	0
AR	Munday Ind.	0162	0.7										6/1-7/1	0	51
S	Morton	0163											5/15-7/15	0	18
S	Martinell	0164											7/1-11/30	0	83
S	Esterwald	0166											5/15-11/30	0	5
S	Rebich & Sons	0170											6/2-11/30	0	27
S	Rebich	0174											7/15-10/30	0	62
S	Railroad	0175											9/1-12/31	0	296
S	E. Munday	0176	0.75		70						79[i]		nonuse	79	0
	Mooney	0178	1.5								35[b,e,m]		nonuse	35	0
S	Duffner	0180											5/1-10/30	0	9
S	Passmore	0183	0.5		80						16[i]		nonuse	16	0
S	Meine Land and Livestock	0184									44[j]		6/15-10/14	44	45
S	McCandless	0185											6/1-10/31	0	237
S	Seybold	0187											5/1-5/31; 10/1-11/30	0	86
S	Selkirk	0188									111[i]		nonuse	111	0
S	Schonenberger	0189											7/1-10/30	0	11

S	Rutledge Ranches	0190											8/1-10/30	0	62
S	Farley Polaris	0191	3.0		1,180						57[d,e,i]		5/15-11/30	57	57
S	Brown's Canyon	0194									13[i]		nonuse	13	0
AR	Rutledge-Doolittle	0196	0.5										9/1-9/30	0	6
S	Third Creek	0237											5/16-10/15	0	21
S	Chalk Bluff	0300											8/1-11/30	0	174
S	Willow Creek	0304											6/15-8/1, Pasture A; 8/1-9/30, Pasture B.	0	17
S	Waterloo	0306			640						47[d]		8/1-9/30	47	47
S	Carpenter	0307											5/1-7/1	0	10
S	Childs Ind.	0310											4/1-6/30	0	51
S	Lott	0331											8/15-10/15	0	39
S	Haggin Ind.	0334;									60[j]		6/15-10/15	60	60
S	Peck Ind	0336											6/1-9/30	0	11
S	Pendergast	0338											5/5-5/20; 11/1-12/15	0	19
S	Deep Creek	0339	0.75		60								5/16-9/30; 8/1-10/30	0	146
S	Leffler Creek	0340									16[j]		5/15-7/1; 10/1-10/15	16	16
S	Smith Ind.	0346											6/1-10/15	0	25
S	White Rock	0349									15[j]		5/1-9/15	15	33
S	Kearns Ind.	0350											3/1-3/29	0	27
S	Harriet Lou Cr.	0352											6/1-6/30	0	9
S	McCullough Ind.												11/1-11/30	0	167

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
S	Individual A&B	0370											5/16-6/30	0	169
S	Fish Creek S.G.C.	0371									10[j]		5/15-6/15	10	8
S	Armstrong	0378											6/1-11/30	0	25
S	Ballard	0379											6/1-9/30	0	4
S	Bausch	0380											6/1-10/15	0	73
S	Carter	0386									9[i]		nonuse	9	0
S	Dehaan	0390											5/1-11/30	0	8
S	Easter	0393									88[j]		5/1-2/1	88	89
S	Elmer	0394											6/1-11/30	0	76
S	Biltmore	0395											5/1-11/30	0	63
S	Frisbee-McGee	0399									45[b,e,j]		10/1-12/30	45	44
S	Goggins Hereford	0400									32[j]		5/1-11/30	32	32
S	Lineberger	0401									10[i]		6/16-10/10	10	13
S	J. Peter Jackson	0405											5/16-11/15	0	69
S	Peter V. Jackson	0406									42[j]		4/1-12/31	42	43
S	William T. Jackson	0408											8/15-12/30	0	48
S	Jourdain	0410									5[j]		6/16-10/15	5	8
S	Glenn Kyle	0412											9/1-10/15	0	38
S	Billie Grant Kyle	0413											7/1-8/15	0	29
S	Manion	0415											8/1-10/20	0	2
S	Ledyard-McGuire	0416											8/1-10/31	0	98
S	Michael	0417									80[j]		6/1-10/31	80	80
S	Miller	0418											10/1-4/30	0	4

S	Flying D	0420											3/10-5/10	0	12
S	Owens	0422											10/1-11/30	0	20
S	Robison	0429											6/16-8/30	0	63
S	Sacry	0430									16[d]		8/15-10/31	16	18
S	Vern Shaw	0432											4/20-6/10	0	23
S	Shelton	0434									25[j]		8/15-11/30	25	24
S	Glen Shelton	0435									10[j]		6/15-9/30	10	8
S	Shirley	0436											8/15-11/14	0	64
S	Cliff Lake	0437											6/1-11/30	0	7
S	Sitz	0438											3/1-1/15	0	18
S	Willow Creek	0440									41[d]		nonuse	41	0
S	Moran	0444	1.2		40						15[i]		5/1-9/30	15	18
S	Minnie Creek	0451									16[j]		6/1-8/15	16	16
	Armitage	0452	2.0		219						16[i]		5/1-10/30	16	16
S	Walker Creek	0454	1.0[i,r]		170[i,r]						19[i,r]		5/1-11/30	19	25
S	Butts	0455											10/1-12/1	0	14
S	Bar Seven	0457									50[j]		5/1-11/30	50	322
S	Whitney	0458											5/1-11/30	0	15
S	Sun Ranch	0460	3.0		710								6/1-10/15	0	82
S	CB Ranch	0461											12/1-7/1	0	68
S	Squaw Creek	0462									60[c]		8/1-10/15	60	44
S	Laurin Canyon	0463											8/1-10/31	0	114
S	Coconougher	0464											6/1-8/31	0	6
S	Mill Creek-Gustin	0465; 0467	1.2		80						51[i]		nonuse	51	0

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Grazing* System	Allotment Name	Allotment Number	Fence (miles)	Fence Removal (miles)	Acres to Exclude From Livestock	Sagebrush Control		Plowing and Seeding (acres)	AUM Reductions from Initial Stocking Level			** Overlap	Season of Use	Total Reductions (AUMs)	Proposed Stocking Level (AUMs)
						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
S	Nyhart	0470											7/15-11/1; 6/1-11/1	0	85
S	Daems	0472											4/1-6/30; 11/1-11/30	0	12
S	Blue Lake	0473											6/20-11/1	0	16
S	Durham	0474											Summer/Fall/ Rest	0	33
S	Elkhorn	0476											10/1-5/31	0	22
RR	Elser	0477											6/1-7/30; 8/1-9/15	0	23
S	Funk	0478											5/1-10/30	0	23
S	Tucker Creek	0480											6/1-12/14	0	16
S	Baker Summit	0487											5/1-11/30	0	26
S	Black Rock	0491									50[i]		6/10-11/1	50	97
S	Garnet	0492											8/1-10/31	0	23
RR	Pierce Canyon	0493									37[j]		8/1-9/30; 10/7-11/30	37	38
S	Riverlodge	0494	1.0		70						12[i]		8/15-11/15	12	12
S	Bench Allotment	0495											5/1-5/31	0	21
S	Trout Creek	0496									18[j]		6/1-9/15	18	19
S	Cedar Creek	0500											3/1-10/31	0	7
S	Eclipse	0502											5/1-11/30	0	4
S	Moorse Creek	0504											10/1-12/1	0	24
S	LaMarche Creek	0508											5/1-11/30	0	33
S	Herman Gulch	0509											6/1-10/30	0	7
S	Hoffman Creek	0511											6/15-12/31	0	35

S	Big Sheep	0513											5/19-2/28	0	73
S	Hillside	0514											10/1-3/1	0	29
S	Red Canyon	0517											5/1-10/30	0	63
RR	Riverside	0524									40[i]		6/1-7/1;9/1-10/1	40	82
S	Spring Canyon	0527											7/15-10/1	0	38
S	Spear Place	0528											7/1-10/10	0	89
S	McAtee Bridge	0529	2.3		160						82[i]		nonuse	82	0
S	Carter Creek	0534											6/1-11/31	0	63
S	Antelope Gulch	0536											5/1-10/31	0	3
S	Beaverhead Rock	0537											5/15-6/20	0	5
S	Kelly Meridian	0539											5/15-6/30	0	32
S	Aspen Creek	0540	1.25		400						63[a,p]		nonuse	63	0
S	York Gulch	0541											5/25-6/1; 9/23-9/30	0	7
S	Hritsco	0542											6/1-10/15	0	30
S	Aqueduct	0545											6/1-12/30	0	4
S	Valley Garden	0547											5/1-11/30	0	30
RR	Madison Valley Holding	0550									10[j]		5/1-7/31; 8/1-11/31	10	13
RR	Garden	0601	2.75										6/15-7/15; 7/15-8/30	0	66
S	Hildreth 1A	0602											6/1-6/15,first; 11/15-12/31, second; rest, third	0	32
S	Kingfisher	0603	0.2[r]								96[b,e,j]		nonuse	96	0

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
S	Little Spring Gulch	0604									40[e,n,p,q]		5/20-6/20; 10/15-1/1	40	246
S	Lovell's Lake	0605									24[m,e]		nonuse	24	0
S	Leadore	0606											10/1-5/15	0	7
S	Snowline AMP Custodial	0607											6/1-10/31	0	632
S	PHW	0608											9/1-12/31	0	8
S	Red Mine	0609											5/1-11/30	0	2
S	Price Creek	0610											5/1-11/30	0	12
RR	Meadow Creek	0611	0.75	0.25									5/15-7/1	0	40
	Four Eyes	0612	1.00[i,r]		135[i,r]						25[i,r]		nonuse	25	0
S	Hanson-Medicine Lodge	0613											9/1-5/15	0	67
S	Hanson-Brown	0614											9/1-12/31	0	48
S	Buhler	0615											6/1-10/30	0	130
AR	Willy	0616											7/1-9/30	0	45
S	Holland-Buffalo	0617											4/1-9/3	0	111
S	Holland-Carroll	0618									9[i]		nonuse	9	0
S	Holland-Bannack	0619									10[q]		5/15-11/30	10	6
S	Dell	0620											5/1-11/30	0	15
S	Huntsman	0621									66[j]		7/1-9/30	66	66
S	Detton	0622											5/15-12/31	0	48
S	Dillon	0623											6/1-10/30	0	10
S	Knox	0624									30[j,n]		5/1-10/31	30	28
S	Kent	0625									6[j]		5/18-1/10	6	5

S	Shesser-Horse Prairie	0626									4[a]		nonuse	4	0
	Shesser-Stoll Tract	0627	1.0	1.2							20[a,b,i]		Place in Lemhi proposed AMP	20	0
S	Rocky Hills Allotment 6	0628											5/15-11/30	0	7
S	Rocky Hills-Painter Creek	0629									16[a,e]		nonuse	16	0
S	Red Butte	0630											4/1-10/30	0	14
S	Robb Creek	0631											6/1-11/30	0	44
S	Timber Butte	0632											5/1-11/30	0	19
S	Saier Ind.S.G.C.	0633											4/15-11/30	0	6
S	Henneberry Ridge	0634											5/1-10/30	0	9
S	Gallagher	0635									80[j,e,o]		6/1-9/31	80	55
S	Moss	0636			212						55[a,j,e,g]		3/1-11/30	55	52
S	Rody	0637									17[j,g]		nonuse	17	0
S	Cottonwood Creek	0638											7/1-10/30	0	133
S	Wheat	0640											5/15-11/30	0	9
S	Allotment B	0641											5/1-11/30	0	7
RR	Truax Creek	0642	1.50	1.25							68[e]		6/16-10/15	68	24
S	Orphan	0643											6/1-12/31	0	12
S	Whitworth	0644											10/1-5/15	0	5
RR	Horse Prairie-Bloody Dick	0645	1.0		240						80[b,e,i]		7/15-9/14	80	25
S	Horse Prairie-Station Creek	0646									10[i]		nonuse	10	0

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
S	Horse Prairie-North Frying Pan	0647											6/1-11/30	0	3
S	Sand Dunes	0648											6/1-10/31	0	24
S	Snowcrest	0649									5[e]		nonuse	5	0
S	Forsythe	0650									38[j,g]		7/15-11/30	38	37
S	Chaffin	0651									110[c]		nonuse	110	0
S	Lichtenberg	0652									43[i]		nonuse	43	0
S	Medicine Lodge	0653									25[j]		10/1-5/15	25	25
S	Donovan	0654											5/15-11/30	0	105
S	Mansfield	0655											10/1-5/15	0	10
S	Crazy Springs	0656											3/1-6/30	0	225
S	Burk	0657											5/16-6/30	0	7
S	Nelson	0658											10/2-10/17	0	5
S	Devil's Dancehall	0659											6/1-11/30	0	42
S	Deno Creek	0660											6/1-6/30	0	5
S	Rochester Basin	0661	3.5		960						137[d,m]		5/1-11/30	137	136
S	O.H.S.	0662											7/1-9/25	0	2
S	Rice Ranches	0663											4/1-11/30	0	195
S	Wall Canyon	0664									2[j]		nonuse	2	0
S	Belmont	0665									108[i]		6/1-10/30	108	109
S	Sweetwater	0666											5/1-6/1	0	23
S	Fossil Basin	0667									32[j]		5/15-11/1	32	32

S	Tucker Creek-Feely Tract	0668									20^{j}		6/1-12/15	20	20
S	Granite-Moore	0669									31^{j}		7/1-11/30	31	61
S	Sodak Mine	0670											10/1-5/31	0	167
S	V.C. Custodial	0671											6/1-11/30	0	160
S	Belle	0672											8/1-10/15	0	23
S	Hungry Hollow	0673											5/15-6/10	0	30
S	Idaho	0676											8/15-10/31	0	37
S	Spring Brook	0677									130^{j}		4/15-12/31	130	129
S	Lark	0678											5/1-11/30	0	89
S	Sand Coulee	0679	1.25		540						47^{d}		nonuse	47	0
S	Timber Creek	0681									9^{i}		nonuse	9	0
S	Ruby Dam	0682											7/1-9/30	0	5
S	Cabin Creek	0704											6/15-10/30	0	60
S	Wildwood Land & Cattle Co.	0705											6/26-9/30	0	26
S	Stibal	0707	1.5		200						$52^{a,f,i}$		8/1-11/30	52	182
S	Slanger	0712											6/1-8/30	0	22
S	Turner	0715											6/1-10/30	0	76
S	Stanford	0717											4/1-11/30	0	86
S	Farley-Shale	0718											6/15-10/30	0	4
S	Snowline Isolated	0719									$35^{o,q}$		6/1-10/15	35	129
S	Reservoir Creek	0723											7/1-8/14	0	11
S	Roe Ranch	0729											4/1-10/30	0	14

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
S	G. W. Jones	0731	1.25		80						26[g]		nonuse	26	0
S	Holton Brothers	0733									50[c]		6/1-11/30	50	25
S	Davis	0737											6/1-10/1	0	18
S	Clemow Ranches	0742									16[j]		5/1-12/30	16	16
S	Lester Else Ranch	0744											7/1-12/31	0	10
S	McKnight Creek	0746											6/1-11/30	0	304
S	Mill Point	0751											5/1-6/30; 10/15-12/30	0	103
S	Barrett	0754											10/1-5/15, 5A; 6/15-11/30,200A.	0	2
S	Alkali Creek	0755											5/1-8/30	0	61
S	Frenchie Creek	0756											5/15-11/30	0	9
AR	Road Agent Rock	0759									41[c]		nonuse	41	0
S	Shaffner	0760											11/1-6/1	0	17
S	Pierce S.G.C.	0762											6/1-10/31	0	26
Unallotted															
U	Aspen	Unlsd.													
U	Badger	Unlsd.													
U	Bear Gulch	Unlsd.													
U	Blain Spring	Unlsd.													
U	Bureau of Reclamation	Unlsd.													
U	Caboose Canyon	Unlsd.													

U	Charcoal Mtn.	Unlsd.													
U	Clovis Gulch	Unlsd.													
U	Deadwood Gulch	Unlsd.													
U	Dog Paw	Unlsd.													
U	Dog Town	Unlsd.													
U	Dry Creek	Unlsd.													
U	East Fork	Unlsd.													
U	Fox Gulch	Unlsd.													
U	Game Range	Unlsd.													
U	Goat Mountain	Unlsd.													
U	Irishman's	Unlsd.													
U	Lodgepole	Unlsd.													
U	Mahogany	Unlsd.													
U	Maiden Rock	Unlsd.													
U	Montana Unleased	Unlsd.													
U	Pony	Unlsd.													
U	Red Bluff	Unlsd.													
U	Red Mountain C.G.	Unlsd.													
U	Retort Mountain	Unlsd.													
U	Rosy Finch	Unlsd.													
U	Ruby Mountain	Unlsd.													
U	Sand Creek	Unlsd.													
U	Sandpiper	Unlsd.													

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						Spray (acres)	Burn (acres)		Critical Erosion	Pasture Capacity Stocking	Wildlife				
U	Sheep Mountain	Unlsd.													
U	Shepherd's Cross	Unlsd.													
U	Shrike	Unlsd.													
U	Snowberry	Unlsd.													
U	Sourdough	Unlsd.													
U	Swamp Creek	Unlsd.													
U	Two Heart	Unlsd.													
U	Harry Shaw	0431													
U	Wigwam Creek	0503	2.2	640											
U	MCCSA	0505													
U	Big Hole	0515													
U	Overnite	0520													
U	Axes Canyon	0535													
U	Corral Creek	0543													
U	Jumping Horse	0546													
U	Rio Puerco	0639													
U	Stone Creek	0674													
U	McHessor Creek	0680													
U	Tom Creek	0701													
U	Rock-Moose	0721													
U	Flying N	0724													

U	Big Hole Grazing Assn.	0743	1.5												
Subtotal, Non-AMPs and Unallotted									9	0	3,364	0		3,373	13,088
Grand Total									10,243	9,329	21,477	5,801		35,243	74,785

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SOURCE: Bureau of Land Management, 1979

a. Elk calving; defer turnout. AUMs may be recovered.

b. Elk, summer and fall.

c. Elk, winter; poor condition.

d. Elk, winter; reduction.

e. Deer, summer; high quality.

f. Waterfowl nesting; defer turnout.

g. Waterfowl nesting; no grazing.

h. Waterfowl nesting; reduction.

i. Riparian; no grazing.

j. Riparian; reduction.

k. Riparian; change system.

l. Grizzly; no grazing.

m. Bighorn; no grazing.

n. Deer, winter; reduction.

o. Sage grouse nesting; reduction.

p. Antelope, winter; reduction.

q. Antelope, summer; reduction.

r. Recreation use conflict; exclude grazing.

APPENDIX 13: COMPARISON OF GRAZING MANAGEMENT BY ALTERNATIVE **

Allot-ment Number	Allotment Name	Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
		Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
Existing AMPs with RR Grazing System									
0001	Pine Creek	RR	6/1-10/15	405	+ 125	RR	6/1-10/15	405	+ 125
0004	Selway	RR	7/1-7/30; 8/1-9/15	118	0	RR	7/1-7/30; 8/1-9/15	118	0
0005*	Stonehouse	RR	5/10-6/25; 11/25-1/10	1,985	- 90	RR	5/10-6/25; 11/25-1/10	1,985	- 90
0007*	Armstead-Upper Sage	RR	5/15-12/31	1,890	- 151	RR	5/15-12/31	1,890	- 151
0011	Mosman	RR	5/15-10/15	514	0	RR	5/15-10/15	514	0
0012*	Matador	RR	4/15-12/31	4,906	+ 1,781	RR	4/15-12/31	4,906	+ 1,781
0013*	Gallagher Mountain	RR,DR	5/1-10/20	4,177	0	RR,DR	5/1-10/20	4,177	0
0014	Barretts	RR	5/10-8/9; 8/10-11/24	208	0	RR	5/10-8/9; 8/10-11/24	208	0
0018*	Bear Creek	RR	7/1-9/30	371	+ 161	RR	7/1-9/30	371	+ 161
0019	Rape Creek	RR	6/1-6/30; 9/1-9/30	906	0	RR	6/1-6/30; 9/1-9/30	906	0
0027	Tallent	RR,D	6/5-12/1	465	- 20	RR,D	6/5-12/1	465	- 20
0037	Baldy Mountain	RR,D	5/10-10/15	1,303	+ 334	RR,D	5/10-10/15	1,303	+ 334
0039	Muddy Creek	RR,D	6/15-11/15	1,649	0	RR,D	6/15-11/15	1,649	0
0040*	Price Creek	RR,D	7/1-12/15	1,273	0	RR,D	7/1-12/15	1,273	0
0042*	Meadow Creek	RR	6/16-9/30	184	0	RR	6/16-9/30	184	0
0301	Copp-Jackson	RR	6/1-10/15	197	+ 23	RR	6/1-10/15	197	+ 23
0303	Moose Creek	RR	5/21-11/30	680	0	RR	5/21-11/30	680	0
0324	Rochester Basin	RR	6/1-10/15	1,938	- 8	RR	6/1-10/15	1,938	- 8
0749	Deer Canyon	RR	7/1-10/15	30	0	RR	7/1-10/15	30	0
Subtotal, Existing AMPs with RR Grazing System				23,199				23,199	
Existing AMPs with AR Grazing System									
0015	Bannack	AR	5/1-6/29	511	- 33	AR	5/1-6/29	511	- 33
0017	Coyote Flats	AR	5/15-6/14	400	0	AR	5/15-6/14	400	0
0167*	Robb Creek	AR	8/1-8/30	467	- 78	AR	8/1-8/30	467	- 78
0268	Iron Rod	AR,DR	5/16-10/15	569	- 177	AR,DR	5/16-10/15	569	- 177
0317	Greenstone	AR	8/15-10/20	216	+ 128	AR	8/15-10/20	216	+ 128
0318	Jerry Creek	AR	6/1-6/20	856	+ 75	AR	6/1-6/20	856	+ 75
Subtotal, Existing AMPs with AR Grazing System				3,019				3,019	

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
RR	6/15-10/15	330	+ 50	RR	6/1-10/15	457	+ 177	RR	6/1-10/15	280	280
RR	7/1-7/30; 8/1-9/15	118	0	RR	7/1-7/30; 8/1-9/15	143	+ 25	RR	7/1-7/30; 8/1-9/15	118	118
RR	5/10-6/25; Argenta Springs 11/25-1/10; McDowell Ermont	1,338	- 737	RR	5/10-6/25; 11/25-1/10	2,342	+ 267	RR	5/10-6/25; 11/25-1/10	2,075	2,075
RR	5/15-10/15; pasture A,6/1-8/20; pasture B,6/6-8/30	1,232	- 809	RR	5/15-12/31	1,771	- 270	RR	5/15-12/31	2,041	2,041
RR	5/15-10/15	514	0	RR	5/15-10/15	570	+ 56	RR	5/15-10/15	514	514
RR	6/1-8/1; 9/1-10/15	2,770	- 355	RR	4/15-12/31	9,000	+ 5,875	RR	4/15-12/31	3,125	3,125
RR	5/1-10/20,Dry Mast & Warm Spring pastures; 5/15-6/15; 8/1-8/30, rest	3,390	- 787	RR,DR	5/1-10/20	4,599	+ 422	RR,DR	5/1-10/20	4,177	4,177
RR	5/10-8/9; 8/10-11/24	208	0	RR	5/10-8/9; 8/10-11/24	274	+ 66	RR	5/10-8/9; 8/10-11/24	208	208
AR	8/15-9/30	186	- 24	RR	7/1-9/30	396	+ 186	RR	7/1-9/30	210	210
RR	6/15-7/15; 9/1-9/30	641	- 265	RR	6/1-6/30; 9/1-9/30	1,230	+ 324	RR	6/1-6/30; 9/1-9/30	906	906
RR	6/15-12/1	277	- 208	RR,D	6/5-12/1	548	+ 63	RR,D	6/15-12/1	485	485
RR	5/10-7/1; 7/1-10/15	953	- 16	RR,D	5/10-10/15	1,420	+ 451	RR	5/10-10/15	969	969
RR	6/15-11/15	1,463	- 186	RR,D	6/15-11/15	1,698	+ 49	RR	6/15-11/15	1,649	1,649
RR	7/10-9/1; 9/2-10/25	588	- 685	RR,D	7/1-12/15	1,603	+ 330	RR,D	7/1-12/15	1,273	1,273
RR	6/16-9/30	184	0	RR,D	6/16-9/30	214	+ 30	RR	6/16-9/30	184	184
AR,DR	6/1-10/15	148	- 26	RR	6/1-10/15	204	+ 30	RR	6/1-10/15	174	174
AR,DR	5/21-11/30	484	- 196	RR	5/21-11/30	696	+ 16	RR	5/21-11/30	680	680
RR	6/1-10/15	1,292	- 654	RR	6/1-10/15	2,170	+ 224	RR	6/1-10/15	1,946	1,946
RR	7/1-10/15	30	0	RR	7/1-10/15	32	+ 2	RR	7/1-10/15	30	30
		16,146				29,367				21,044	21,044

AR	5/1-6/29, 2 years' rest after use	219	- 325	AR	5/1-6/29	744	+ 200	AR	5/1-6/29	544	544
RR	6/15-6/30; 8/1-9/1	257	- 143	AR	5/15-6/14	440	+ 40	AR	5/15-6/14	400	400
AR	8/1-8/30	234	- 311	AR	8/1-8/30	459	- 86	AR	8/1-8/30	545	545
RR	5/16-10/15; add a rest to Bulldog & Yarborough pastures	534	- 212	AR,DR	5/16-10/15	2,226	+ 1,480	AR,DR	5/16-10/15	746	746
AR	8/15-10/20	55	- 33	AR	8/15-10/20	216	+ 128	AR	8/15-10/20	88	88
	Exclude livestock grazing	0	- 781	AR	6/1-6/20	907	+ 126	AR	6/1-6/20	781	781
		1,299				4,992				3,104	3,104

		Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
Allotment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
Existing AMPs with DR Grazing System									
0116*	Conover	DR	7/15-9/15	286	0	DR	7/15-9/15	286	0
Subtotal, Existing AMPs with DR Grazing System				286				286	
Total, Existing AMPs				26,504				26,504	
Revised AMPs with RR Grazing System									
0002*	Clark Canyon	RR	1/1-12/31	1,783	- 317	RR	1/1-12/31	1,783	- 317
0010	Crooked Creek	RR	5/1-9/4	373	- 10	RR	5/1-9/4	373	- 10
0020	North Black Canyon	RR	6/1-9/30	1,139	- 229	RR	6/1-9/30	1,139	- 229
0021*	Leadman	RR	5/15-6/15; 11/16-1/15	395	0	RR	5/15-6/15; 11/16-1/15	395	0
0022	Dixon Mountain	RR	11/15-12/31	260	+ 48	RR	11/15-12/31	260	+ 48
0026	Anderson Field	RR	5/1-1/28	1,040	- 265	RR	5/1-1/28	1,040	- 265
0029*	Snowline	RR	6/17-10/21	1,989	- 907	RR	6/17-10/21	1,989	- 907
0030	Reservoir Creek	RR	5/15-6/30; 8/15-9/30	1,375	0	RR	5/15-6/30; 8/15-9/30	1,375	0
0031*	PHW	RR	5/15-8/30	1,116	+ 160	RR,AR	5/15-8/30	1,116	+ 160
0032	Exchange Pasture	RR	5/15-10/30	406	- 144	RR	5/15-10/30	406	- 144
0033	Cross Allotment	RR	6/1-10/30	420	0	RR	6/1-10/30	420	0
0034*	Red Mine	RR	6/1-9/30	470	- 107	RR	6/1-9/30	470	- 107
0035	Brenner Seeding	RR	6/1-6/30; 9/1-9/30	417	- 228	RR	6/1-6/30; 9/1-9/30	417	- 228
0038	Buck Creek	RR	4/15-6/25	1,118	+ 268	RR	4/15-6/25	1,118	+ 268
0308*	Camp Creek	RR	5/21-10/3	2,859	+ 649	RR	5/21-10/3	2,859	+ 649
0335	Lelow Basin	RR	6/1-6/30; 8/6-9/30	176	+ 79	RR	6/1-6/30; 8/6-9/30	176	+ 79
0471*	Sweetwater	RR	5/20-10/19	1,281	- 776	RR	5/20-10/19	1,281	- 776
Subtotal, Revised AMPs with RR Grazing System				16,617				16,617	
Revised AMPs with AR Grazing System									
0016	Chinatown	AR	5/20-7/15	662	+ 1	AR	5/20-7/15	662	+ 1
0025	Trail Creek	AR	6/1-8/30	34	- 81	AR	6/1-8/30	34	- 81
0041	Rock Creek	AR	5/20-7/1	140	- 27	AR	5/20-7/1	140	- 27
Subtotal, Revised AMPs with AR Grazing System				836				836	
Revised AMPs with DR Grazing System									
0009	Junction Seeding	DR	6/24-11/7	272	0	DR	6/24-11/7	272	0
0028	Scudder Creek	DR	5/21-6/20	221	- 21	DR	5/21-6/20	221	- 21
Subtotal, Revised AMPs with DR Grazing System				493				493	
Total, Revised AMPs				17,946				17,946	

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
	Exclude Livestock Grazing	0	- 286	DR	7/15-9/15	380	+ 94	DR	7/15-9/15	286	286
		0				380				286	286
		17,445				34,739				24,434	24,434
AR,RR	5/15-2/28	939	- 1,161	RR	1/1-12/31	2,143	+ 43	RR,D	5/15-2/28	2,100	2,100
RR	6/1-7/30;8/15-9/14; rest; 5/1-6/1	373	- 10	RR	5/1-9/4	508	+ 125	RR	5/1-9/4	383	383
RR	7/1-9/15;9/16-11/1	712	- 656	RR	6/1-9/30	1,173	- 195	RR	6/1-9/30	1,368	1,368
RR	6/15-7/15; 11/16-1/15	310	- 85	RR	5/15-6/15; 11/16-1/15	1,161	+ 766	D,S	10/15-12/14	395	395
RR	11/15-12/31	149	- 63	RR	11/15-12/31	301	+ 89	RR	5/15-7/5; 12/1-12/31	212	212
RR	5/1-1/28; add more rest	989	- 316	RR	5/1-1/28	1,103	- 202	AR,D	5/10-1/9	1,305	1,305
RR	6/17-10/21; add a rest to pasture 8	1,449	- 1,447	RR	6/17-10/21	2,208	- 688	RR	5/21-6/20	2,896	2,896
RR	6/15-7/30; 8/15-9/30	588	- 787	RR	5/15-6/30; 8/15-9/30	2,026	+ 651	RR	5/15-6/20; 8/26-9/30	1,375	1,375
RR	5/15-8/30; add more rest	741	- 215	RR	5/15-8/30	3,091	+ 2,135	AR,DR	5/15-8/30	956	956
RR	6/15-7/14;7/15-9/15	271	- 279	RR	5/15-10/30	457	- 93	S	5/15-10/15	550	550
RR	6/15-8/30;9/1-10/15 2 years' nonuse	320	- 100	RR	6/1-10/30	1,004	+ 584	S	6/1-10/30	420	420
RR	6/15-9/15	320	- 257	RR	6/1-9/30	537	- 40	RR	6/1-9/30	577	577
RR	6/1-6/30; 9/1-9/30	277	- 368	RR	6/1-6/30; 9/1-9/30	440	- 205	AR	5/16-9/30	645	645
RR	6/1-7/15;7/15-8/30	663	- 187	RR	4/15-6/25	1,118	+ 268	AR	4/15-12/15	850	850
RR	5/21-10/3	2,859	+ 649	RR	5/21-10/3	3,768	+ 1,558	AR,DR	5/21-10/15	2,210	2,210
RR	6/1-6/30; 8/6-9/30	176	+ 79	RR	6/1-6/30; 8/6-9/30	338	+ 241	AR	6/1-9/30	97	97
RR	5/20-10/19	981	- 1,076	RR	5/20-10/19	1,505	- 552	DR	5/20-10/19	2,057	2,057
		12,117				22,881				18,396	18,396
RR	6/1-8/10	251	- 410	AR	5/20-7/15	725	+ 64	AR	5/15-7/20	661	661
RR	6/15-8/30	34	- 81	AR	6/1-8/30	106	- 9	S	5/1-6/19	115	115
RR	5/20-7/1	140	- 27	AR	5/20-7/1	144	- 23	S	5/20-7/1	167	167
		425				975				943	943
RR	6/24-7/15;10/15-11/7	243	- 29	DR	6/24-11/7	355	+ 83	S	6/24-11/7	272	272
AR	5/21-6/3	111	- 131	DR	5/21-6/20	236	- 6	DR	5/21-6/20	242	242
		354				591				514	514
		12,896				24,447				19,853	19,853

Allot-ment Number	Allotment Name	Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
		Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
Proposed AMPs with DR Grazing System									
0107*	Porcupine Canyon	DR	6/1-6/30; 10/1-12/31	458	0	S	5/15-12/31	458	0
0109*	Weldon Buhler	DR	6/1-6/21; 11/1-11/11	45	0	S	6/1-11/30	45	0
0118	Antelope Butte	DR,AR	7/1-1/15	91	0	S	7/1-1/15	91	0
0145*	Lemhi Pass	DR	7/15-9/30	78	0	S	7/1-9/30	78	0
0147*	Matador Blacktail	DR	7/1-10/15	176	- 132	S	3/1-6/30	176	- 132
0150*	Radio-TV Tower	DR	8/20-11/11	388	- 27	S	5/15-11/30	388	- 27
0152*	Long Creek	DR	5/1-12/15	1,603	0	S	6/17-10/15	1,603	0
0156	Maiden Creek	DR,RR	6/10-7/31; 9/10-10/10	89	- 67	S	5/1-5/31	89	- 67
0160	Burns Mountain	DR	5/1-6/1; 10/15-12/6	153	- 23	S	4/20-5/19	153	- 23
0165	Coyote Creek	DR	6/1-8/30	142	- 133	S	6/25-7/24	142	- 133
0171*	Henneberry Ridge	DR	7/25-10/15	153	0	S	6/25-10/15	153	0
0172	Ruby Dell	DR	6/25-7/16; 10/1-10/25	557	0	S	6/16-10/25	557	0
0173*	Gallagher Creek	DR	10/1-10/30	63	- 47	S	6/1-10/31	63	- 47
0182*	Kennison Spring	DR	6/1-6/15; 10/1-2/28	136	0	S	5/15-2/28	136	0
0192*	Shoshone Cove	DR	5/15-9/15	183	0	S	5/1-7/31	183	0
0193*	William Bell Canyon	DR,D	5/20-10/15	1,167	- 83	S	5/10-11/14	1,167	- 83
0404	Preacher Creek	DR	6/25-11/1	92	0	S	6/1-11/30	92	0
0421*	Strawberry Ridge	DR	7/1-8/31; 9/1-10/31	230	- 61	S	5/15-10/31	230	- 61
0456	Ballard	DR	6/15-9/30	127	- 50	S	6/15-9/30	127	- 50
0479*	Garden Creek	DR	7/1-10/15	857	- 550	S	5/15-10/31	857	- 550
0482*	North Fork	DR	5/1-6/10; 11/1-2/15	222	0	S	5/1-12/31	222	0
0485*	Axolotl Lakes	DR,RR	7/1-10/1	518	- 547	S	4/15-11/15	518	- 547
0512	Rock Creek	DR	3/1-4/30;6/1- 9/30;12/1-2/28	810	- 267	S	3/1-10/15	810	- 267
0516*	Spring Brook	DR	5/1-11/1	933	- 528	S	5/1-12/15	933	- 528
0720*	Whitworth	DR	6/1-9/20	132	- 7	S	6/10-7/30	132	- 7
0732*	Sand Dunes	DR	7/1-10/14	109	- 39	S	6/19-7/31	109	- 39
0734*	Snowcrest Ranch	DR	5/15-6/15; 9/1-11/15	117	0	S	5/15-11/14	117	0
Subtotal, Proposed AMPs with DR Grazing System				9,629				9,629	
Proposed AMPs with D Grazing System									
0104	Twin Lakes	D	7/1-9/30	53	- 121	S	8/16-11/16	53	- 121
0120*	Frenchie-Carroll-Holland	D	11/15-12/31	667	- 322	S	5/15-12/31	667	- 332
0151*	Lima Reservoir	D,RR	6/16-7/1; 8/10-11/30	1,161	0	S	3/1-2/28	1,161	0

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
RR	6/1-6/30; 10/1-12/31	258	- 200	DR	6/1-6/30; 10/1-12/31	518	+ 60	S	5/15-12/31	458	458
DR	6/1-6/21; 11/1-11/11	45	0	DR	6/1-6/21; 11/1-11/11	77	+ 32	S	6/1-11/30	45	45
DR,AR	7/1-1/15	91	0	DR,AR	7/1-1/15	99	+ 8	S	7/1-1/15	91	91
	Exclude livestock grazing	0	- 78	DR	7/15-9/30	159	+ 81	S	7/1-9/30	78	78
	Exclude livestock grazing	0	- 308	DR	7/1-10/15	199	- 109	S	3/1-6/30	308	308
AR	8/20-11/11	194	- 221	DR	8/20-11/11	423	+ 8	S	5/15-11/30	415	415
	Exclude livestock grazing	0	- 1,603	DR	5/1-12/15	3,703	+ 2,100	S	6/17-10/15	1,603	1,603
	Exclude livestock grazing	0	- 156	DR,RR	6/10-7/31; 9/10-10/10	95	- 61	S	5/1-5/31	156	156
DR	5/1-6/1; 10/15-12/6	153	- 23	DR	5/1-6/1; 10/15-12/6	153	- 23	S	4/20-5/19	176	176
RR	6/15-7/15;8/1-9/1	80	- 195	DR	6/1-8/30	375	+ 100	S	6/25-7/24	275	275
RR	7/25-10/15	144	- 9	DR	7/25-10/15	180	+ 27	S	6/25-10/15	153	153
RR	6/25-7/16; 10/1-10/25	557	0	DR	6/25-7/16; 10/1-10/25	3,279	+ 2,722	S	6/16-10/25	557	557
DR	10/1-10/30	42	- 68	DR	10/1-10/30	70	- 40	S	6/1-10/31	110	110
DR	6/1-6/15; 10/1-2/28	93	- 43	DR	6/1-6/15; 10/1-2/28	417	+ 281	S	5/15-2/28	136	136
RR	5/15-9/15	95	- 88	DR	5/15-9/15	322	+ 139	S	5/1-7/31	183	183
DR,D	5/10-10/15	794	- 456	DR,D	5/20-10/15	1,295	+ 45	S	5/10-11/14	1,250	1,250
	Exclude livestock grazing	0	- 92	DR	6/25-11/1	107	+ 15	S	6/1-11/30	92	92
DR	7/1-8/31; 9/1-10/31	115	- 176	DR	7/1-8/31; 9/1-10/31	262	- 29	S	5/15-10/31	291	291
DR	8/15-9/30	42	- 135	DR	6/15-9/30	181	+ 4	S	6/15-9/30	177	177
AR	7/1-10/15	429	- 978	DR	7/1-10/15	1,183	- 224	S	5/15-10/31	1,407	1,407
DR	5/1-6/10; 11/1-2/15	222	0	DR	5/1-6/10; 11/1-2/15	288	+ 66	S	5/1-12/31	222	222
DR,RR	7/1-10/1	421	- 644	DR,RR	7/1-10/1	729	- 336	S	4/15-11/15	1,065	1,065
DR	3/1-4/30;6/1-9/30; 12/1-2/28	810	- 267	DR	3/1-4/30; 6/1-9/30 12/1-2/28	1,029	- 48	S	3/1-10/15	1,077	1,077
DR	6/1-11/1	837	- 624	DR	5/1-11/1	1,393	- 68	S	5/1-12/15	1,461	1,461
RR	7/1-9/30	132	- 7	DR	6/1-9/20	155	+ 16	S	6/10-7/30	139	139
DR	7/1-10/14	109	- 39	DR	7/1-10/14	142	- 6	S	6/19-7/31	148	148
DR	7/1-7/15; 9/15-10/14	117	0	DR	5/15-6/15; 9/1-11/15	506	+ 389	S	5/15-11/14	117	117
		5,780				17,339				12,190	12,190
AR	7/1-9/30	27	- 147	D	7/1-9/30	81	- 93	S	8/16-11/16	174	174
D	11/15-12/31	587	- 402	D	11/15-12/31	769	- 220	S	5/15-12/31	989	989
	Exclude livestock grazing	0	- 1,161	D,RR	6/16-7/1 8/10-11/30	1,583	+ 422	S	3/1-2/28	1,161	1,161

Allotment Number	Allotment Name	Alternative A Proposed Grazing Management Program: Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Alternative B Limited Action: Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0161	Buzztail	D	10/1-2/28	56	0	S	10/1-2/21	56	0
0168*	Timber Butte	D	9/15-9/30	501	0	S	10/1-1/1	501	0
0169*	Saier Ind.	D	9/1-10/1	102	0	S	5/15-11/14	102	0
0313*	Nelson	D	10/2-10/17	95	- 30	S	10/2-10/15	95	- 30
0319	Gneiting	D	6/15-8/1; 8/1-9/15; 9/15-10/15	120	0	S	6/16-9/15	120	0
0345	Logan Smith	D	10/16-11/15	150	0	S	10/16-11/15	150	0
0385	Windy Pass	D	7/1-8/30	42	- 37	S	7/1-8/31	42	- 37
0407	Revenue Common	D,RR	6/9-10/15	306	- 70	S	6/1-11/31	306	- 70
0428*	Fletcher-Moore	D,RR	6/15-9/14	213	- 92	S	5/15-12/1	213	- 92
0459	Bryan	D	8/1-10/15	122	- 101	S	8/1-10/15	122	- 101
0499*	Idaho Jack	D	7/10-9/27	247	- 166	S	7/1-9/30	247	- 166
0501*	Wisconsin Creek	D	8/15-10/14	170	- 31	S	5/15-11/14	170	- 31
0518*	Sweetwater Basin	D	7/15-8/15	107	- 116	S	5/15-11/14	107	- 116
0521*	Virginia City Hill	D	6/3-11/19; 5/20-11/19	328	- 394	S	5/1-11/15	328	- 394
0706*	Wheat	D	11/15-12/15	39	- 122	S	11/15-12/14	39	- 122
0710*	Staudenmeyer	D	7/25-10/30	783	- 43	S	5/15-11/14	783	- 43
0722	Small Horn Canyon	D	8/4-10/15	43	- 45	S	5/15-11/14	43	- 45
Subtotal, Proposed AMPs with D Grazing System				5,305				5,305	
Proposed AMPs with RR Grazing System									
0101	Little Divide	RR	5/15-9/30	504	0	S	3/1-2/28	504	0
0102*	Morrison Sweeney	RR	6/15-9/15	32	0	S	6/1-8/30	32	0
0102*	Cabin Creek	RR	6/15-9/15	310	0	S	6/1-8/30	310	0
0108*	Hansen Creek	RR	4/1-7/1; 11/1-2/1; 5/16-10/15	2,571	0	S	3/1-2/28	2,571	0
0110	Pipe Organ Rock	RR	5/15-11/30	84	0	S	5/15-11/14	84	0
0113	Red Canyon	RR	5/10-6/30; 8/10-9/22	351	- 348	S	9/1-10/20	351	- 348
0114	Bill Hill Creek	RR,D	6/10-7/15; 12/1-2/1	220	- 20	S	6/1-7/15; 12/16-1/31	220	- 20
0119	Pass Creek	RR	7/1-10/15	659	- 31	S	6/15-10/31	659	- 31
0122*	Taylor Cr.-Buffalo Cr.	RR	5/30-6/25; 9/15-10/11	690	- 257	S	5/15-11/14	690	- 257
0123*	Huntsman	RR	5/6-9/30	331	0	S	5/6-9/30	331	0
0124*	Cedar Creek	RR	5/20-6/30; 9/15-11/1	299	- 241	S	5/6-9/30	299	- 241
0126	Ellis Peak	RR	7/1-9/30	464	- 405	S	5/15-8/30	464	- 405
0129*	Big Spring Gulch	RR	5/15-6/25	658	0	S	5/15-6/25; 11/1-12/31	658	0
0130	South Black Canyon	RR	6/16-9/30	297	- 522	S	6/16-9/30	297	- 522
0131*	Frying Pan	RR,AR	5/10-10/31	336	- 87	S	5/1-10/31	336	- 87

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
D	10/1-2/28	48	- 8	D	10/1-2/28	104	+ 48	S	10/1-2/21	56	56
D	9/15-9/30	501	0	D	9/15-9/30	597	+ 96	S	10/1-1/1	501	501
AR	7/1-10/1	102	0	D	9/1-10/1	152	+ 50	S	5/15-11/14	102	102
D	10/2-10/17	95	- 30	D	10/2-10/17	105	- 20	S	10/2-10/15	125	125
RR	6/15-7/15; 8/15-9/30	27	- 93	D	6/15-8/1; 8/1-9/15; 9/15-10/15	229	+ 109	S	6/16-9/15	120	120
D	10/16-11/15	150	0	D	10/16-11/15	630	+ 480	S	10/16-11/15	150	150
	Exclude livestock grazing	0	- 79	D	7/1-8/30	45	- 34	S	7/1-8/31	79	79
RR	6/9-10/15	164	- 212	D,RR	6/9-10/15	343	- 33	S	6/1-11/1	376	376
D,RR	6/15-9/14	213	- 92	D,RR	6/15-9/14	241	- 64	S	5/15-12/1	305	305
D	8/1-10/15	110	- 113	D	8/1-10/15	140	- 83	S	8/1-10/15	223	223
	Exclude livestock grazing	0	- 413	D	7/10-9/27	262	- 151	S	7/1-9/30	413	413
D	8/15-10/14	83	- 118	D	8/15-10/14	209	+ 8	S	5/15-11/14	201	201
D	6/15-7/15;8/15-9/30	107	- 116	D	7/15-8/15	165	- 58	S	5/15-11/14	223	223
D	6/3-11/19	155	- 567	D	6/3-11/19; 5/20-11/19	1,173	+ 451	S	5/1-11/15	722	722
D	11/15-12/15	39	- 122	D	11/15-12/15	50	- 111	S	11/15-12/14	161	161
RR	6/15-8/1;8/1-9/30	522	- 304	D	7/25-10/30	1,628	+ 802	S	5/15-11/14	826	826
D	8/4-10/15	43	- 45	D	8/4-10/15	46	- 42	S	5/15-11/14	88	88
		2,973				8,552				6,995	6,995

Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
RR	7/1-11/15	472	- 32	RR	5/15-9/30	2,056	+ 1,552	S	3/1-2/28	504	504
RR	7/1-8/1;8/1-8/15; 8/15-9/15	23	- 9	RR	6/15-9/15	183	+ 151	S	6/1-8/30	32	32
RR	6/1-8/30	218	- 92	RR	6/15-9/15	346	+ 36	S	6/1-8/30	310	310
RR	4/1-6/1;6/1-7/1; 11/1-2/1; 5/16- 8/1;8/1-10/15	1,758	- 813	RR	4/1-7/1; 11/1-2/1; 5/16-10/15	3,590	+ 1,019	S	3/1-2/28	2,571	2,571
RR	5/15-11/30	84	0	RR	5/15-11/30	259	+ 175	S	5/15-11/14	84	84
RR	5/10-6/30; 8/10-9/22	332	- 367	RR	5/10-6/30; 8/10-9/22	400	- 299	S	9/1-10/20	699	699
RR,D	6/10-7/15; 12/1-2/1	220	- 20	RR,D	6/10-7/15; 12/1-2/1	297	+ 57	S	6/1-7/15; 12/16-1/31	240	240
RR	7/1-10/15	330	- 360	RR	7/1-10/15	797	+ 107	S	6/15-10/31	690	690
RR	5/30-6/25; 9/15-10/11	346	- 601	RR	5/30-6/25; 9/15-10/11	2,098	+ 1,151	S	5/15-11/14	947	947
RR	5/6-9/30	331	0	RR	5/6-9/30	792	+ 461	S	5/6-9/30	331	331
RR	5/20-6/30; 9/15-11/1	78	- 462	RR	5/20-6/30; 9/15-11/1	551	+ 11	S	5/6-9/30	540	540
RR	7/1-9/30	325	- 544	RR	7/1-9/30	552	- 317	S	5/15-8/30	869	869
RR	5/15-6/25; 11/1-12/31	395	- 263	RR	5/15-6/25	1,090	+ 432	S	5/15-6/25; 11/1-12/31	658	658
RR	7/1-9/30	255	- 564	RR	6/16-9/30	365	- 454	S	6/16-9/30	819	819
RR,AR	5/10-10/31	197	- 226	RR,AR	5/10-10/31	436	+ 13	S	5/1-10/31	423	423

		Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
Allot-ment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0136*	Knox	RR	6/1-11/30	959	- 207	S	3/1-11/31	959	- 207
0137	Bull-Heifer Creek	RR	5/15-7/15; 8/15-10/30	62	0	S	7/15-9/30	62	0
0138*	Kent Price Canyon	RR	5/10-10/31	318	- 46	S	6/15-10/31	318	- 46
0143	Mayberry	RR,DR	5/20-10/15; 5/5-7/1	2,375	0	S	3/1-3/15; 5/10-2/28	2,375	0
0158	Simpson Creek	RR	6/1-9/20	1,101	0	S	6/1-10/30	1,101	0
0177*	Phalarope	RR	5/1-10/31	1,028	0	S	5/1-10/31; 12/1-2/28	1,028	0
0179*	Peet Rock	RR	6/15-7/10; 8/15-10/31	236	- 291	S	5/16-11/10	236	- 291
0197	Bell Ranch	RR	6/1-10/30	274	0	S	6/1-10/30	274	0
0199*	Rody	RR	3/1-2/28	236	0	S	6/1-9/30	236	0
0269*	Four Eyes	RR	5/15-11/30	292	0	S	5/15-12/31	292	0
0270*	Lima Peaks	RR	6/16-10/15	236	0	S	6/1-10/31	236	0
0302	Bradley	RR	6/1-7/1; 10/1-10/15	36	- 87	S	5/16-6/30	36	- 87
0305*	Burk Rieber	RR	6/1-6/30; 10/1-10/30	73	- 81	S	5/16-6/30	73	- 81
0311	Glendale Common	RR	6/1-6/30; 10/1-10/15	210	- 187	S	6/1-6/30	210	- 187
0312	Maiden Rock	RR	5/15-7/1; 10/1-10/30	27	0	S	5/15-6/30	27	0
0314	Garrison	RR	6/1-9/22	500	- 530	S	5/1-12/15	500	- 530
0315	Richards	RR	6/1-6/30; 10/1-10/30	116	- 14	S	5/16-6/30	116	- 14
0316	Red Fern	RR	7/1-10/10	93	- 293	S	7/1-10/1	93	- 293
0320*	Browns Cherry Creek	RR	6/1-6/30; 9/15-10/15	174	0	S	5/15-6/30	174	0
0323	McCartney Mountain	RR	5/1-7/15; 8/15-9/14	2,349	- 779	S	5/1-7/15	2,349	- 779
0326	Tungsten Mill	RR	5/18-6/20; 10/1-10/15	145	0	S	5/6-6/20	145	0
0328*	Birch Cr.-Willow Cr.	RR	5/15-7/1; 10/1-10/30	290	0	S	5/6-6/20	290	0
0332	Skeeters	RR	6/1-6/15; 12/1-12/15	41	0	S	6/1-7/1	41	0
0337	Seven Springs-Big Hole	RR	6/1-7/1; 9/15-10/15	159	- 121	S	5/28-6/30	159	- 121
0341*	Deno Creek	RR	6/1-7/10; 9/15-10/30	56	- 53	S	6/1-6/30	56	- 53
0342	Limekiln	RR	5/20-7/10; 10/1-11/1	62	- 62	S	5/22-7/7	62	- 62
0347	Twin Adams	RR	4/15-5/15; 8/15-9/15	72	0	S	5/4-6/4	72	0
0348	Georgia Gulch	RR	6/15-9/14	172	- 77	S	6/1-9/30	172	- 77
0354	Seyler Pasture	RR	5/10-5/31; 10/16-12/15	672	0	S	5/10-5/31	672	0
0377	Sparrow Ditch	RR	6/15-8/14	80	0	S	5/15-11/14	80	0

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Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
RR	7/1-11/30	479	- 687	RR	6/1-11/30	1,126	- 40	S	3/1-11/31	1,166	1,166
RR	6/15-7/15; 8/15-10/30	62	0	RR	5/15-7/15; 8/15-10/30	258	+ 196	S	7/15-9/30	62	62
RR	6/15-10/31	111	- 253	RR	5/10-10/31	346	- 18	S	6/15-10/31	364	364
RR	6/1-7/15; 7/16-9/30	1,519	- 856	RR,DR	5/20-10/15; 5/5-7/1	3,658	+ 1,283	S	3/1-3/15; 5/10-2/28	2,375	2,375
RR	6/1-9/30; Apply RR to pastures 6 & 7	876	- 225	RR	6/1-9/20	2,785	+ 1,684	S	6/1-10/30	1,101	1,101
RR	5/1-10/31; East- 6/15-8/1;8/2-9/15	530	- 498	RR	5/1-10/31	1,907	+ 879	S	5/1-10/31; 12/1-2/28	1,028	1,028
RR	6/15-7/10; 9/1-11/15	156	- 371	RR	6/15-7/10; 8/15-10/31	418	- 109	S	5/16-11/10	527	527
RR	7/1-8/1;8/1-9/15	79	- 195	RR	6/1-10/30	350	+ 76	S	6/1-10/30	274	274
RR	3/1-2/28	119	- 117	RR	3/1-2/28	372	+ 136	S	6/1-9/30	236	236
RR	5/15-11/30	292	0	RR	5/15-11/30	262	- 30	S	5/15-12/31	292	292
RR	6/16-10/15	175	- 61	RR	6/16-10/15	517	+ 281	S	6/1-10/31	236	236
RR	6/1-7/1;10/1-10/15 nonuse for 3 years	36	- 87	RR	6/1-7/1; 10/1-10/15	85	- 38	S	5/16-6/30	123	123
RR	6/1-6/30; 10/1-10/30	42	- 112	RR	6/1-6/30; 10/1-10/30	270	+ 116	S	5/16-6/30	154	154
RR	6/1-6/30; 10/1-10/15	177	- 220	RR	6/1-6/30; 10/1-10/15	288	- 109	S	6/1-6/30	397	397
	Exclude livestock grazing	0	- 27	RR	5/15-7/1; 10/1-10/30	77	+ 50	S	5/15-6/30	27	27
RR	7/1-7/31;8/1-8/31	166	- 864	RR	6/1-9/22	695	- 335	S	5/1-12/15	1,030	1,030
RR	6/1-6/30; 10/1-10/30	77	- 53	RR	6/1-6/30; 10/1-10/30	123	- 7	S	5/16-6/30	130	130
RR	7/1-10/10	93	- 293	RR	7/1-10/10	126	- 260	S	7/1-10/1	386	386
RR	6/1-6/30; 10/1-11/1	54	- 120	RR	6/1-6/30; 9/15-10/15	665	+ 491	S	5/15-6/30	174	174
RR	5/1-7/15; 8/15-9/14	1,798	- 1,330	RR	5/1-7/15; 8/15-9/14	2,863	- 265	S	5/1-7/15	3,128	3,128
RR	5/18-6/20; 10/1-10/15	97	- 48	RR	5/18-6/20; 10/1-10/15	256	+ 111	S	5/6-6/20	145	145
RR	4/1-5/15; 10/1-10/30	290	0	RR	5/15-7/1; 10/1-10/30	1,232	+ 942	S	5/6-6/20	290	290
RR	6/1-6/15; 12/1-12/15	25	- 16	RR	6/1-6/15; 12/1-12/15	98	+ 57	S	6/1-7/1	41	41
RR	6/1-7/1; 10/1-11/15	106	- 174	RR	6/1-7/1; 9/15-10/15	465	+ 185	S	5/28-6/30	280	280
RR	6/1-7/10; 9/15-10/30	26	- 83	RR	6/1-7/10; 9/15-10/30	148	+ 39	S	6/1-6/30	109	109
RR	6/20-7/15; 10/1-11/1	41	- 83	RR	5/20-7/10; 10/1-11/1	114	- 10	S	5/22-7/7	124	124
RR	4/15-5/15; 8/15-9/15	66	- 6	RR	4/15-5/15; 8/15-9/15	164	+ 92	S	5/4-6/4	72	72
RR	6/15-9/14	115	- 134	RR	6/15-9/14	411	+ 162	S	6/1-9/30	249	249
RR	5/10-5/31; 10/16-12/15	466	- 206	RR	5/10-5/31; 10/16-12/15	924	+ 252	S	5/10-5/31	672	672
	Exclude livestock grazing	0	- 80	RR	6/15-8/14	87	+ 7	S	5/15-11/14	80	80

		Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
Allotment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0433	Shaw Basin	RR	6/15-9/15	74	0	S	4/20-7/20	74	0
0443	Kountz	RR	6/15-10/14	182	0	S	6/15-10/15	182	0
0447	Wallace Peak	RR	7/1-10/1	100	- 77	S	7/1-9/30	100	- 77
0468	Granite Creek	RR	6/1-9/30	75	- 148	S	6/1-9/30	75	- 148
0469*	Belmont	RR	5/1-10/15; 2/15-2/28	677	- 360	S	3/1-2/28	677	- 360
0488*	Virginia City	RR	6/15-9/14	197	- 93	S	6/1-9/30	197	- 290
0489*	Benchmark	RR	5/25-11/30	165	- 169	S	5/15-11/14	165	- 169
0490	Barton Gulch	RR	6/15-9/1	52	- 12	S	5/15-11/14	52	- 12
0497	Davey Creek	RR	6/1-10/1	318	- 20	S	6/1-10/15	318	- 20
0498*	Stone Creek	RR,D	7/1-10/15	297	- 141	S	7/16-10/31	297	- 141
0507	California Creek	RR	6/15-9/30	181	- 97	S	6/15-9/30	181	- 97
0526	Dry Lakes	RR	6/1-10/30; 6/1-10/15	283	- 186	S	6/1-10/30	283	- 186
0531*	Copper Mountain	RR,DR	5/20-10/19	158	- 199	S	5/20-10/19	158	- 199
0533*	Timber Creek	RR,D, DR	6/9-10/15	513	- 250	S	6/1-10/15	513	- 250
0699*	Nicholia	RR	5/15-7/1	1,045	0	S	5/15-7/1	1,045	0
0702*	Thomas	RR	5/15-8/15; 8/15-11/15	254	0	S	5/15-11/14	254	0
0703	Wolfe	RR	5/15-7/15; 8/15-10/30	175	- 19	S	5/15-10/30	175	- 19
0708	Fish Creek	RR	5/1-6/1; 8/15-10/15	1,104	0	S	5/1-11/30	1,104	0
0714*	Welborn (Dell)	RR	5/15-7/15; 8/15-10/20	264	0	S	6/1-10/31	264	0
0725*	Horse Prairie Livestock	RR	5/20-9/5	301	- 334	S	5/15-11/14	301	- 334
0727*	Roe Ranch	RR	7/1-10/15	417	0	S	6/1-11/14	417	0
0730	Jones Peet	RR	7/1-10/15	231	0	S	6/15-9/17	231	0
0735*	Forsythe	RR	6/1-11/30; 7/1-9/30	1,041	- 148	S	5/1-12/14	1,041	- 148
0738	Cocanougher	RR	6/1-9/30	39	- 61	S	7/10-9/30	39	- 61
0740*	East Clover Creek	RR	6/15-10/15	318	0	S	6/16-7/15; 10/1-10/25	318	0
0741*	Indian Creek	RR	6/1-9/15	331	- 331	S	6/1-6/20; 8/16-9/15	331	- 331
0745	Taylor Creek	RR	6/1-9/30	69	0	S	6/1-7/1	69	0
0748*	Briggs-Medicine Lodge	RR	5/15-10/14	1,476	0	S	5/15-10/15; 9/1-2/28	1,476	0
0753*	Bannock Pass	RR	6/15-9/1	69	- 43	S	6/15-8/31	69	- 43
0758	Dad Creek	RR	7/1-9/15	34	0	S	5/15-11/14	34	0
Subtotal, Proposed AMPs with RR Grazing System				30,559	7,558			30,690	7,755

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
RR	6/15-9/15	38	- 36	RR	6/15-9/15	106	+ 32	S	4/20-7/20	74	74
RR	7/1-10/14	152	- 30	RR	6/15-10/14	280	+ 98	S	6/15-10/15	182	182
RR	7/1-10/1(added more rest)	100	- 77	RR	7/1-10/1	135	- 42	S	7/1-9/30	177	177
RR	6/1-9/30	75	- 148	RR	6/1-9/30	171	- 52	S	6/1-9/30	223	223
RR	6/1-10/15; 2/15-6/15	451	- 586	RR,D	5/1-10/15; 2/15-2/28	831	- 206	S	3/1-2/28	1,037	1,037
RR	6/15-9/14	197	- 290	RR	6/15-9/14	204	- 283	S	6/1-9/30	487	487
RR	5/25-11/30	165	- 169	RR	5/25-11/30	272	- 62	S	5/15-11/14	334	334
RR	7/15-8/15;8/15-9/15	52	- 12	RR	6/15-9/1	56	- 8	S	5/15-11/14	64	64
RR	6/1-10/1	218	- 120	RR	6/1-10/1	397	+ 59	S	6/1-10/15	338	338
RR,D	7/15-9/1;9/1-10/15	136	- 302	RR,D	7/1-10/15	380	- 58	S	7/16-10/31	438	438
RR,AR	6/15-9/30;8/15-9/30	91	- 187	RR	6/15-9/30	245	- 33	S	6/15-9/30	278	278
RR	6/1-10/30; 6/1-10/15	152	- 317	RR	6/1-10/30; 6/1-10/15	403	- 66	S	6/1-10/30	469	469
RR,DR	5/20-10/19	123	- 234	RR,DR	5/20-10/19	246	- 111	S	5/20-10/19	357	357
RR,DR	6/9-10/15; RR on Taylor Pasture	406	- 357	RR,D, DR	6/9-10/15	699	- 64	S	6/1-10/15	763	763
AR	5/15-7/1	622	- 423	RR	5/15-7/1	1,701	+ 656	S	5/15-7/1	1,045	1,045
RR,AR	6/15-8/15; 8/15-11/15	145	- 109	RR	5/15-8/15; 8/15-11/15	446	+ 192	S	5/15-11/14	254	254
RR	5/15-7/15; 8/15-10/30	113	- 81	RR	5/15-7/15; 8/15-10/30	189	- 5	S	5/15-10/30	194	194
RR	6/15-8/1; 8/1-9/30	847	- 257	RR	5/1-6/1; 8/15-10/15	1,815	+ 711	S	5/1-11/10	1,104	1,104
RR	5/15-7/15; 8/15-10/20	162	- 102	RR	5/15-7/15; 8/15-10/20	425	+ 161	S	6/1-10/31	264	264
RR	5/20-9/5	85	- 550	RR	5/20-9/5	399	- 236	S	5/15-11/14	635	635
RR	7/1-10/15	417	0	RR	7/1-10/15	1,723	+ 1,306	S	6/1-11/14	417	417
RR	7/1-10/15	137	- 94	RR	7/1-10/15	1,115	+ 884	S	6/15-9/17	231	231
RR	6/1-11/30; 7/1-9/30	694	- 495	RR	6/1-11/30; 7/1-9/30	1,113	- 76	S	5/1-12/14	1,189	1,189
RR	6/1-9/30	37	- 63	RR	6/1-9/30	57	- 43	S	7/10-9/30	100	100
RR	6/15-10/15	238	- 80	RR	6/15-10/15	2,178	+ 1,860	S	6/16-7/15; 10/1-10/25	318	318
RR	6/15-8/1;8/1-8/15 8/15-9/30	331	- 331	RR	6/1-9/15	520	- 142	S	6/1-6/20; 8/16-9/15	662	662
RR	6/1-9/30	46	- 23	RR	6/1-9/30	264	+ 195	S	6/1-7/1	69	69
RR	6/15-7/15;7/15-8/15;8/15-10/5	893	- 583	RR	5/15-10/14	2,475	+ 999	S	5/15-10/15; 9/1-2/28	1,476	1,476
RR	6/15-9/1	69	- 43	RR	6/15-9/1	77	- 35	S	6/15-8/31	112	112
RR	7/1-9/15	15	- 19	RR	7/1-9/15	99	+ 65	S	5/15-11/14	34	34
		20,644				53,923				38,314	38,314

		Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
Allotment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
Proposed AMPs with AR Grazing System									
0135*	Big Hole Road	AR,RR,D	5/20-6/20; 11/1-4/30	167	0	S	3/1-7/19; 10/12-2/28	167	0
0148*	Rocky Hills	AR	5/1-6/20	1,609	- 257	S	5/1-6/20; 10/1-11/30	1,609	- 257
0159*	Shineberger	AR,D	7/15-9/30	211	0	S	5/15-11/14	211	0
0236	Dry Boulder	AR	6/1-10/1	25	- 8	S	7/1-9/30	25	- 8
0322	Lost Creek	AR	5/10-7/10	56	- 61	S	5/10-6/10	56	- 61
0327*	Devil's Dancehall	AR	4/15-6/10	68	- 86	S	5/1-5/31	68	- 86
0343	Quartz Hill	AR	6/1-6/30	55	- 23	S	7/1-7/31	55	- 23
0351	Alder Creek	AR,D	6/1-7/15; 10/1-10/30	119	- 24	S	6/15-9/25	119	- 24
0475	Mill Gulch	AR,D	6/1-10/25	98	0	S	5/15-11/14	98	0
0481	Brandon Pasture	AR	6/1-6/16	51	- 47	S	6/2-6/15	51	- 47
0486*	Hogback	AR	4/1-6/1	74	0	S	5/1-2/10	74	0
0510	Rattlesnake	AR	5/15-6/30	128	0	S	5/1-6/15	128	0
0522	Wall Creek	AR,D	6/1-10/31	145	0	S	5/15-10/31	145	0
0525	Middle Fork	AR,D	6/1-11/30	449	0	S	6/1-11/30	449	0
0530*	McHessor Creek	AR,D,DR	7/1-10/15	97	- 102	S	6/1-10/31	97	- 102
Subtotal, Proposed AMPs with AR Grazing System				3,352				3,352	
Proposed AMPs with SDHI Grazing System									
0353*	Lower Rochester Basin	SDHI	4/15-6/15	146	- 59	S	6/1-2/28	146	- 59
Subtotal, Proposed AMPs with SDHI Grazing System				146				146	
	Total, Proposed AMPs			49,122				49,122	
Non-AMPs									
	Antelope Creek	S	6/1-10/30	9	+ 9	S	6/1-10/30	9	+ 9
	Birch Creek	S	6/1-10/15	5	+ 5	S	6/1-10/15	5	+ 5
	Boner Knob	S	5/1-10/31	2	+ 2	S	5/1-10/31	2	+ 2
	Buckwheat	S	6/1-10/30	5	+ 5	S	6/1-10/30	5	+ 5
	Bufflehead	S	6/1-11/30	6	+ 6	S	6/1-11/30	6	+ 6
	Butch Hill	S	6/1-11/30	6	+ 6	S	6/1-11/30	6	+ 6
	Cameron Bench	S	5/1-11/30	6	+ 6	S	5/1-11/30	6	+ 6
	Casey	S	4/1-6/1	16	+ 16	S	4/1-6/1	16	+ 16
	Checkerboard	S	6/1-10/31	9	+ 9	S	6/1-10/31	9	+ 9
	Cherry Creek	S	5/1-10/31	7	+ 7	S	5/1-10/31	7	+ 7
	Chokecherry	S	6/1-9/30	2	+ 2	S	6/1-9/30	2	+ 2

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
AR,RR,D	5/20-6/20; 11/1-4/30	167	0	AR,RR,D	5/20-6/20; 11/1-4/30	314	+ 147	S	3/1-7/19; 10/12-2/28	167	167
AR	5/1-6/20; Windmill Pasture, 6/1-7/20	804	- 1,062	AR	5/1-6/20	4,166	+ 2,300	S	5/1-6/20; 10/1-11/30	1,866	1,866
AR,D	7/15-9/30	211	0	AR,D	7/15-9/30	231	+ 20	S	5/15-11/14	211	211
	Exclude livestock grazing	0	- 33	AR	6/1-10/1	28	- 5	S	7/1-9/30	33	33
AR	4/1-5/15	56	- 61	AR	5/10-7/10	61	- 56	S	5/10-6/10	117	117
AR	4/15-6/1	68	- 86	AR	4/15-6/10	125	- 29	S	5/1-5/31	154	154
	Exclude livestock grazing	0	- 78	AR	6/1-6/30	166	+ 88	S	7/1-7/31	78	78
AR,D	6/15-7/30; 10/1-11/30	79	- 64	AR,D	6/1-7/15; 10/1-10/30	153	+ 10	S	6/15-9/25	143	143
	Exclude livestock grazing	0	- 98	AR,D	6/1-10/25	159	+ 61	S	5/15-11/14	98	98
AR	6/1-6/16	22	- 76	AR	6/1-6/16	116	+ 18	S	6/2-6/15	98	98
AR	4/1-6/1	37	- 37	AR	4/1-6/1	144	+ 70	S	5/1-2/10	74	74
AR	6/15-7/1	54	- 74	AR	5/15-6/30	225	+ 97	S	5/1-6/15	128	128
AR,D	6/1-10/31	72	- 73	AR,D	6/1-10/31	375	+ 230	S	5/15-10/31	145	145
AR,D	6/1-11/30	181	- 268	AR,D	6/1-11/30	734	+ 285	S	6/1-11/30	449	449
AR,D,DR	7/1-10/15	62	- 137	AR,D,DR	7/1-10/15	154	- 45	S	6/1-10/31	199	199
		1,813				7,151				3,960	3,960
SDHI	4/15-6/15	146	- 59	SDHI	4/15-6/15	162	- 43	S	6/1-2/28	205	205
		146				162				205	205
		31,356				87,127				61,664	61,664
S	6/1-10/30	9	+ 9	S	6/1-10/30	9	+ 9		N/A	0	0
S	6/1-10/15	5	+ 5	S	6/1-10/15	5	+ 5		N/A	0	0
S	5/1-10/31	2	+ 2	S	5/1-10/31	2	+ 2		N/A	0	0
S	6/1-10/30	5	+ 5	S	6/1-10/30	5	+ 5		N/A	0	0
S	6/1-11/30	6	+ 6	S	6/1-11/30	6	+ 6		N/A	0	0
S	6/1-11/30	6	+ 6	S	6/1-11/30	6	+ 6		N/A	0	0
S	5/1-11/30	6	+ 6	S	5/1-11/30	6	+ 6		N/A	0	0
RR	5/15-10/15; include in Exchange AMP	16	+ 16	S	4/1-6/1	16	+ 16		N/A	0	0
S	6/1-10/31	9	+ 9	S	6/1-10/31	9	+ 9		N/A	0	0
S	5/1-10/31	7	+ 7	S	5/1-10/31	7	+ 7		N/A	0	0
S	6/1-9/30	2	+ 2	S	6/1-9/30	2	+ 2		N/A	0	0

Allot-ment Number	Allotment Name	Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
		Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
	Condor	S	5/1-11/30	4	+ 4	S	5/1-11/30	4	+ 4
	Corral Creek	S	6/1-11/30	36	+ 36	S	6/1-11/30	36	+ 36
	Dickie	S	5/1-10/31	11	+ 11	S	5/1-10/31	11	+ 11
	Dry Hollow	S	5/1-11/30	7	+ 7	S	5/1-11/30	7	+ 7
	Ennis Lake	S	7/1-3/31	2	+ 2	S	7/1-3/31	2	+ 2
	Flying N	S	5/15-11/30	91	+ 91	S	5/15-11/30	91	+ 91
	Harrison	S	8/1-11/30	13	+ 13	S	8/1-11/30	13	+ 13
	Jackrabbit	S	4/1-12/31	27	+ 27	S	4/1-12/31	27	+ 27
	Johnny Gulch	S	4/1-11/31	2	+ 2	S	4/1-11/31	2	+ 2
	Kidd	S	10/1-5/31	9	+ 9	S	10/1-5/31	9	+ 9
	Lima	S	5/1-12/30	8	+ 8	S	5/1-12/30	8	+ 8
	Little America	S	5/1-11/30	37	+ 37	S	5/1-11/30	37	+ 37
	London Hills	S	6/1-9/30	4	+ 4	S	6/1-9/30	4	+ 4
	Miner Creek	S	6/21-9/30	11	+ 11	S	6/21-9/30	11	+ 11
	Monida	S	5/1-11/30	28	+ 28	S	5/1-11/30	28	+ 28
	Moose Creek	S	5/1-10/30	38	+ 38	S	5/1-10/30	38	+ 38
	Mt. Humbug	S	6/1-9/30	15	+ 15	S	6/1-9/30	15	+ 15
	Mule Shoe	S	10/1-10/30	3	+ 3	S	10/1-10/30	3	+ 3
	Mustang	S	8/1-11/30	45	+ 45	S	8/1-11/30	45	+ 45
	Ruddy Duck	S	5/1-11/30	9	+ 9	S	5/1-11/30	9	+ 9
	Shepherd Mountain	S	6/1-6/30	4	+ 4	S	6/1-6/30	4	+ 4
	Spokane	S	5/1-10/30	6	+ 6	S	5/1-10/30	6	+ 6
	Steamboat Rock	S	6/1-11/30	1,487	+ 1,487	S	6/1-11/30	1,487	+ 1,487
	Sugarloaf Mountain	S	5/1-11/30	7	+ 7	S	5/1-11/30	7	+ 7
	Trapper Creek	S	5/1-11/30	13	+ 13	S	5/1-11/30	13	+ 13
	Triangle	S	5/1-11/30	6	+ 6	S	5/1-11/30	6	+ 6
	Tumbleweed	S	5/1-11/30	7	+ 7	S	5/1-11/30	7	+ 7
	Warm Springs	S	5/1-11/30	17	+ 17	S	5/1-11/30	17	+ 17
0103	Hildreth	S	11/1-2/28	98	- 85	S	11/1-2/28	98	- 85
0105	Anderson	S	6/1-11/30	171	- 246	S	6/1-11/30	171	- 246
0106	Bar OK	S	7/1-9/30	51	+ 6	S	7/1-9/30	51	+ 6
0111	Selway	S	6/1-11/30	17	- 7	S	6/1-11/30	17	- 7
0112	Bjorni	S	5/1-11/30	9	- 3	S	5/1-11/30	9	- 3
0115	Lost Custodial	S	5/1-11/30	57	+ 20	S	5/1-11/30	57	+ 20

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	5/1-11/30	4	+ 4	S	5/1-11/30	4	+ 4		N/A	0	0
S	6/1-11/30	36	+ 36	S	6/1-11/30	36	+ 36		N/A	0	0
S	5/1-10/31	11	+ 11	S	5/1-10/31	11	+ 11		N/A	0	0
S	5/1-11/30	7	+ 7	S	5/1-11/30	7	+ 7		N/A	0	0
S	7/1-3/31	2	+ 2	S	7/1-3/31	2	+ 2		N/A	0	0
RR	6/15-6/30; 8/1-9/1; fence into Coyote Flats proposed AMP	91	+ 91	S	5/15-11/30	91	+ 91		N/A	0	0
S	8/1-11/30	13	+ 13	S	8/1-11/30	13	+ 13		N/A	0	0
RR	6/1-7/15;7/15-9/30; fence into Mayberry proposed AMP	27	+ 27	S	4/1-12/31	27	+ 27		N/A	0	0
S	4/1-11/31	2	+ 2	S	4/1-11/31	2	+ 2		N/A	0	0
S	10/1-5/31	9	+ 9	S	10/1-5/31	9	+ 9		N/A	0	0
S	5/1-12/30	8	+ 8	S	5/1-12/30	8	+ 8		N/A	0	0
S	5/1-11/30	37	+ 37	S	5/1-11/30	37	+ 37		N/A	0	0
S	6/1-9/30	4	+ 4	S	6/1-9/30	4	+ 4		N/A	0	0
RR	6/21-9/30; fence into Forest Service C&H AMP	11	+ 11	S	6/21-9/30	11	+ 11		N/A	0	0
S	5/1-11/30	28	+ 28	S	5/1-11/30	28	+ 28		N/A	0	0
S	5/1-10/30	38	+ 38	S	5/1-10/30	38	+ 38		N/A	0	0
S	6/1-9/30	15	+ 15	S	6/1-9/30	15	+ 15		N/A	0	0
S	10/1-10/30	3	+ 3	S	10/1-10/30	3	+ 3		N/A	0	0
S	8/1-11/30	45	+ 45	S	8/1-11/30	45	+ 45		N/A	0	0
	Exclude livestock grazing	0	0	S	5/1-11/30	9	+ 9		N/A	0	0
S	6/1-6/30	4	+ 4	S	6/1-6/30	4	+ 4		N/A	0	0
S	5/1-10/30	6	+ 6	S	5/1-10/30	6	+ 6		N/A	0	0
S	6/1-11/30	1,437	+ 1,437	S	6/1-11/30	1,487	+ 1,487		N/A	0	0
RR	5/18-6/20;10/1-10/15;fence into Tungsten Mill proposed AMP	7	+ 7	S	5/1-11/30	7	+ 7		N/A	0	0
S	5/1-11/30	13	+ 13	S	5/1-11/30	13	+ 13		N/A	0	0
S	5/1-11/30	6	+ 6	S	5/1-11/30	6	+ 6		N/A	0	0
S	5/1-11/30	7	+ 7	S	5/1-11/30	7	+ 7		N/A	0	0
	Exclude livestock grazing	0	0	S	5/1-11/30	17	+ 17		N/A	0	0
AR	11/1-2/28	98	- 85	S	11/1-2/28	98	- 85	S	11/1-2/28	183	183
S	6/1-11/30	136	- 281	S	6/1-11/30	171	- 246	S	6/1-11/30	417	417
S	7/1-9/30	51	+ 6	S	7/1-9/30	51	+ 6	S	6/1-9/30	45	45
S	6/1-11/30	17	- 7	S	6/1-11/30	17	- 7	S	5/15-11/14	24	24
	Exclude livestock grazing	0	- 12	S	5/1-11/30	9	- 3	S	5/15-11/14	12	12
S	5/1-11/30	40	+ 3	S	5/1-11/30	57	+ 20	S	6/1-7/14; 10/15-12/15	37	37

		Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
Allotment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0125	Huntsman	S	3/1-2/28	53	- 130	S	3/1-2/28	53	- 130
0127	Hildreth Livestock	S	5/15-11/30	104	- 147	S	5/15-11/30	104	- 147
0128	G&L Ranch	S	6/1-11/30	6	- 8	S	6/1-11/30	6	- 8
0132	Erb	S	5/15-11/30	128	+ 12	S	5/15-11/30	128	+ 12
0134	Hayden	S	5/15-12/30	36	0	S	5/15-12/30	36	0
0139	K-6	S	5/15-11/30	8	- 7	S	5/15-11/30	8	- 7
0140	Arlo Jones	S	2/1-6/1	76	0	S	2/1-6/1	76	0
0141	Johnson Bros.	S	6/1-10/30	38	- 77	S	6/1-10/30	38	- 77
0142	Hirschey	S	8/1-10/30	61	+ 11	S	8/1-10/30	61	+ 11
0144	Magpie Trail Gulch	S	6/1-6/30	45	- 13	S	6/1-6/30	45	- 13
0153	Matador S.G.C.	S	5/1-11/30	215	- 41	S	5/1-11/30	215	- 41
0155	L Diamond	S	5/1-11/30	133	- 123	S	5/1-11/30	133	- 123
0157	Long Creek	S	5/15-12/15	41	- 203	S	5/15-12/15	41	- 203
0162	Munday Ind.	S	7/1-10/30	51	- 27	S	7/1-10/30	51	- 27
0163	Morton	S	5/15-7/15	18	0	S	5/15-7/15	18	0
0164	Martinell	S	6/1-10/31	83	+ 57	S	6/1-10/31	83	+ 57
0166	Esterwald	S	5/15-11/30	5	- 7	S	5/15-11/30	5	- 7
0170	Rebich & Sons	S	6/2-11/30	27	- 109	S	6/2-11/30	27	- 109
0174	Rebich	S	7/15-10/30	62	+ 35	S	7/15-10/30	62	+ 35
0175	Railroad	S	9/1-3/31	296	+ 94	S	9/1-3/31	296	+ 94
0176	E. Munday	S	5/1-10/30	79	+ 38	S	5/1-10/30	79	+ 38
0178	Mooney	S	7/1-10/15	35	- 129	S	7/1-10/15	35	- 129
0180	Duffner	S	5/1-10/30	9	- 15	S	5/1-10/30	9	- 15
0183	Passmore	S	5/1-11/30	16	- 59	S	5/1-11/30	16	- 59
0184	Meine Land & Livestock	S	6/15-10/14	89	- 61	S	6/15-10/14	89	- 61
0185	McCandless	S	6/1-10/31	237	0	S	6/1-10/31	237	0
0187	Seybold	S	5/1-5/31; 10/1-11/30	86	- 147	S	5/1-5/31; 10/1-11/30	86	- 147
0188	Selkirk	S	8/15-10/31	111	- 108	S	8/15-10/31	111	- 108
0189	Schonenberger	S	7/1-10/30	11	+ 1	S	7/1-10/30	11	+ 1
0190	Rutledge Ranches	S	8/1-10/30	62	+ 2	S	8/1-10/30	62	+ 2
0191	Farley Polaris	S	5/15-11/30	114	0	S	5/15-11/30	114	0
0194	Brown's Canyon	S	7/15-10/30	13	- 26	S	7/15-10/30	13	- 26
0196	Rutledge-Doolittle	S	9/1-9/30	6	+ 1	S	9/1-9/30	6	+ 1
0237	Third Creek	S	5/16-10/15	21	- 34	S	5/16-10/15	21	- 34
0300*	Chalk Bluff	S	8/1-11/30	174	+ 9	S	8/1-11/30	174	+ 9
0304	Willow Creek	S	6/15-8/1-A; 8/1-9/30-B	17	+ 6	S	6/15-8/1-A; 8/1-9/30-B	17	+ 6
0306	Waterloo	S	8/1-9/30	94	- 49	S	8/1-9/30	94	- 49
0307	Carpenter	S	5/1-7/1	10	- 16	S	5/1-7/1	10	- 16
0310	Childs Ind.	S	4/1-6/30	51	- 11	S	4/1-6/30	51	- 11

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	3/1-2/28	53	- 130	S	3/1-2/28	53	- 130	S	5/15-11/14	183	183
S	5/15-11/30	82	- 169	S	5/15-11/30	104	- 147	S	5/15-11/14	251	251
S	6/1-6/30	6	- 8	S	6/1-11/30	6	- 8	S	6/1-10/31	14	14
S	5/15-11/30	128	+ 12	S	5/15-11/30	128	+ 12	S	5/15-11/14	116	116
S	5/15-12/30	36	0	S	5/15-12/30	36	0	S	5/15-12/30	36	36
S	5/15-11/30	8	- 7	S	5/15-11/30	8	- 7	S	5/15-11/14	15	15
S	2/1-6/1	76	0	S	2/1-6/1	76	0	S	5/15-11/14	76	76
	Exclude livestock grazing	0	- 115	S	6/1-10/30	38	- 77	S	6/1-10/30	115	115
S	8/1-10/30	26	- 24	S	8/1-10/30	61	+ 11	S	5/1-12/30	50	50
S	6/1-6/30	45	- 13	S	6/1-6/30	45	- 13	S	6/1-6/30	58	58
S	5/1-11/30	173	- 83	S	5/1-11/30	215	- 41	S	3/1-2/28	256	256
S	5/1-11/30	133	- 123	S	5/1-11/30	133	- 123	S	5/15-11/14	256	256
	Exclude livestock grazing	0	- 244	S	5/15-12/15	41	- 203	S	3/1-2/28	244	244
S	7/1-10/30	51	- 27	S	7/1-10/30	51	- 27	S	5/1-10/30	78	78
S	5/15-7/15	18	0	S	5/15-7/15	18	0	S	5/15-11/14	18	18
S	7/1-11/30	83	+ 57	S	6/1-10/31	83	+ 57	S	5/15-11/14	26	26
S	5/15-11/30	5	- 7	S	5/15-11/30	5	- 7	S	5/15-11/14	12	12
S	6/2-11/30	27	- 109	S	6/2-11/30	27	- 109	S	5/15-11/30	136	136
S	7/15-10/30	62	+ 35	S	7/15-10/30	62	+ 35	S	5/15-11/14	27	27
S	9/1-12/31	296	+ 94	S	9/1-3/31	296	+ 94	S	6/1-9/30	202	202
	Exclude livestock grazing	0	- 41	S	5/1-10/30	79	+ 38	S	5/1-10/30	41	41
	Exclude livestock grazing	0	- 164	S	7/1-10/15	35	- 129	S	7/1-10/15	164	164
S	5/1-10/30	9	- 15	S	5/1-10/30	9	- 15	S	5/15-11/14	24	24
	Exclude livestock grazing	0	- 75	S	5/1-11/30	16	- 59	S	5/15-11/14	75	75
S	6/15-10/14	45	- 105	S	6/15-10/14	89	- 61	S	6/15-10/14	150	150
S	6/1-10/31	237	0	S	6/1-10/31	237	0	S	5/15-11/14	237	237
S	5/1-5/31; 10/1-11/30	86	- 147	S	5/1-5/31; 10/1-11/30	86	- 147	S	5/1-11/14	233	233
	Exclude livestock grazing	0	- 219	S	8/15-10/31	111	- 108	S	6/1-10/31	219	219
S	7/1-10/30	11	+ 1	S	7/1-10/30	11	+ 1	S	5/15-11/14	10	10
S	8/1-10/30	62	+ 2	S	8/1-10/30	62	+ 2	S	6/1-7/1	60	60
S	5/15-11/30	57	- 57	S	5/15-11/30	114	0	S	5/15-11/14	114	114
	Exclude livestock grazing	0	- 39	S	7/15-10/30	13	- 26	S	5/15-11/14	39	39
AR	9/1-9/30	6	+ 1	S	9/1-9/30	6	+ 1	S	9/1-9/30	5	5
S	5/16-10/15	21	- 34	S	5/16-10/15	21	- 34	S	5/16-10/15	55	55
S	8/1-11/30	174	+ 9	S	8/1-11/30	174	+ 9	S	5/15-11/14	165	165
S	6/15-8/1-A; 8/1-9/30-B	17	+ 6	S	6/15-8/1-A; 8/1-9/30-B	17	+ 6	S	5/15-11/14	11	11
S	8/1-9/30	47	- 96	S	8/1-9/30	94	- 49	S	6/16-9/15	143	143
S	5/1-7/1	10	- 16	S	5/1-7/1	10	- 16	S	10/1-11/15	26	26
S	4/1-6/30	51	- 11	S	4/1-6/30	51	- 11	S	5/15-11/14	62	62

		Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
Allot-ment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0331	Lott	S	8/15-10/15	39	+ 19	S	8/15-10/15	39	+ 19
0334*	Mt. Haggin	S	6/15-10/15	120	- 17	S	6/15-10/15	120	- 17
0336*	Peck Ind.	S	6/1-9/30	11	0	S	6/1-9/30	11	0
0338	Pendergast	S	5/5-5/20; 11/1-12/15	19	+ 1	S	5/5-5/20; 11/1-12/15	19	+ 1
0339	Deep Creek	S	5/16-9/30; 8/1-10/30	146	- 69	S	5/16-9/30 8/1-10/30	146	- 69
0340	Leffler Creek	S	5/15-7/1; 10/1-10/15	32	- 9	S	5/15-7/1; 10/1-10/15	32	- 9
0346	Smith Ind.	S	6/1-10/15	25	+ 1	S	6/1-10/15	25	+ 1
0349	White Rock	S	5/1-9/15	48	- 12	S	5/1-9/15	48	- 12
0350	Kearns Ind.	S	3/1-3/29	27	+ 10	S	3/1-3/29	27	+ 10
0352	Harriet Lou Creek	S	6/1-6/30	9	- 13	S	6/1-6/30	9	- 13
0355*	McCullough Ind.	S	11/1-11/30	167	- 30	S	11/1-11/30	167	- 30
0370	Individual A&B	S	5/16-6/30	169	+ 39	S	5/16-6/30	169	+ 39
0371	Fish Creek S.G.C.	S	5/15-6/15	18	+ 6	S	5/15-6/15	18	+ 6
0378	Armstrong	S	6/1-11/30	25	- 2	S	6/1-11/30	25	- 2
0379	Ballard	S	6/1-9/30	4	0	S	6/1-9/30	4	0
0380	Bausch	S	6/1-10/15	73	0	S	6/1-10/15	73	0
0386	Carter	S	6/15-9/30	9	- 3	S	6/15-9/30	9	- 3
0390	Dehaan	S	5/1-11/30	8	0	S	5/1-11/30	8	0
0393	Easter	S	5/1-2/1	177	+ 12	S	5/1-2/1	177	+ 12
0394	Elmer	S	6/1-11/30	76	+ 43	S	6/1-11/30	76	+ 43
0395	Biltmore	S	5/1-11/30	63	0	S	5/1-11/30	63	0
0399	Frisbee-McGee	S	8/1-10/30	89	- 141	S	8/1-10/30	89	- 141
0400	Goggins Hereford	S	5/1-11/30	64	+ 26	S	5/1-11/30	64	+ 26
0401	Lineberger	S	6/10-10/10	23	+ 3	S	6/10-10/10	23	+ 3
0405	J. Peter Jackson	S	5/16-11/15	69	+ 31	S	5/16-11/15	69	+ 31
0406	Peter V. Jackson	S	4/1-12/31	85	+ 23	S	4/1-12/31	85	+ 23
0408	William T. Jackson	S	8/15-12/30	48	0	S	8/15-12/30	48	0
0410	Jourdain	S	6/16-10/15	13	- 7	S	6/16-10/15	13	- 7
0412	Glenn Kyle	S	9/1-10/15	38	+ 15	S	9/1-10/15	38	+ 15
0413	Billie Grant Kyle	S	7/1-8/15	29	+ 6	S	7/1-8/15	29	+ 6
0415	Manion	S	8/1-10/20	2	- 2	S	8/1-10/20	2	- 2
0416	Ledyard-McGuire	S	8/1-10/31	98	+ 16	S	8/1-10/31	98	+ 16
0417	Michael	S	6/1-10/31	160	+ 74	S	6/1-10/31	160	+ 74
0418	Miller	S	10/1-4/30	4	- 1	S	10/1-4/30	4	- 1
0420	Flying D	S	3/10-5/10	12	- 23	S	3/10-5/10	12	- 23
0422	Owens	S	10/1-11/30	20	0	S	10/1-11/30	20	0
0429	Robison	S	6/16-8/30	63	- 33	S	6/16-8/30	63	- 33
0430	Sacry	S	8/15-10/31	34	0	S	8/15-10/31	34	0
0432	Vern Shaw	S	4/20-6/10	23	+ 14	S	4/20-6/10	23	+ 14

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	8/15–10/15	39	+ 19	S	8/15–10/15	39	+ 19	S	6/16–8/15	20	20
S	6/15–10/15	60	– 77	S	6/15–10/15	120	– 17	S	6/15–10/15	137	137
S	6/1–9/30	11	0	S	6/1–9/30	11	0	S	5/15–11/14	11	11
S	5/5–5/20; 11/1–12/15	19	+ 1	S	5/5–5/20; 11/1–12/15	19	+ 1	S	5/15–11/14	18	18
S	5/16–9/30; 8/1–10/30	146	– 69	S	5/16–9/30; 8/1–10/30	146	– 69	S	5/16–9/30	215	215
S	5/15–7/1; 10/1–10/15	16	– 25	S	5/15–7/1; 10/1–10/15	32	– 9	S	5/15–11/14	41	41
S	6/1–10/15	25	+ 1	S	6/1–10/15	25	+ 1	S	5/15–11/14	24	24
S	5/1–9/15	33	– 27	S	5/1–9/15	48	– 12	S	5/15–11/14	60	60
S	3/1–3/29	27	+ 10	S	3/1–3/29	27	+ 10	S	5/15–11/14	17	17
S	6/1–6/30	9	– 13	S	6/1–6/30	9	– 13	S	5/15–11/14	22	22
S	11/1–11/30	167	– 30	S	11/1–11/30	167	– 30	S	11/1–11/30; 5/16–10/15	197	197
S	5/16–6/30	169	+ 39	S	5/16–6/30	169	+ 39	S	5/16–10/15	130	130
S	5/15–6/15	8	– 4	S	5/15–6/15	18	+ 6	S	5/15–6/15	12	12
S	6/1–11/30	25	– 2	S	6/1–11/30	25	– 2	S	6/1–11/30	27	27
S	6/1–9/30	4	0	S	6/1–9/30	4	0	S	6/1–9/30	4	4
S	6/1–10/15	73	0	S	6/1–10/15	73	0	S	6/1–8/15	73	73
	Exclude livestock grazing	0	– 12	S	6/15–9/30	9	– 3	S	6/15–9/15	12	12
S	5/1–11/30	8	0	S	5/1–11/30	8	0	S	5/1–11/30	8	8
S	5/1–2/1	89	– 76	S	5/1–2/1	177	+ 12	S	6/1–2/29	165	165
S	6/1–11/30	76	+ 43	S	6/1–11/30	76	+ 43	S	6/15–8/15	33	33
S	5/1–11/30	63	0	S	5/1–11/30	63	0	S	5/15–5/31; 11/1–11/15	63	63
S	10/1–12/30	44	– 186	S	8/1–10/30	89	– 141	S	6/21–10/15	230	230
S	5/1–11/30	32	– 6	S	5/1–11/30	64	+ 26	S	6/1–9/30	38	38
S	6/16–10/10	13	– 7	S	6/10–10/10	23	+ 3	S	6/16–10/15	20	20
S	5/16–11/15	69	+ 31	S	5/16–11/15	69	+ 31	S	5/16–11/15	38	38
S	4/1–12/31	43	– 19	S	4/1–12/31	85	+ 23	S	5/16–11/15	62	62
S	8/15–12/30	48	0	S	8/15–12/30	48	0	S	6/1–11/1	48	48
S	6/16–10/15	8	– 12	S	6/16–10/15	13	– 7	S	6/16–10/15	20	20
S	9/1–10/15	38	+ 15	S	9/1–10/15	38	+ 15	S	9/1–10/15	23	23
S	7/1–8/15	29	+ 6	S	7/1–8/15	29	+ 6	S	6/1–10/31	23	23
S	8/1–10/20	2	– 2	S	8/1–10/20	2	– 2	S	8/1–10/20	4	4
S	8/1–10/31	98	+ 16	S	8/1–10/31	98	+ 16	S	6/15–9/15	82	82
S	6/1–10/31	80	– 6	S	6/1–10/31	160	+ 74	S	6/1–8/31	86	86
S	10/1–4/30	4	– 1	S	10/1–4/30	4	– 1	S	6/1–10/31	5	5
S	3/10–5/10	12	– 23	S	3/10–5/10	12	– 23	S	3/1–5/15	35	35
S	10/1–11/30	20	0	S	10/1–11/30	20	0	S	6/1–10/31	20	20
S	6/16–8/30	63	– 33	S	6/16–8/30	63	– 33	S	5/15–6/14	96	96
S	8/15–10/31	18	– 16	S	8/15–10/31	34	0	S	6/1–10/31	34	34
S	4/20–6/10	23	+ 14	S	4/20–6/10	23	+ 14	S	4/20–6/10	9	9

Allotment Number	Allotment Name	Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
		Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0434	Shelton	S	8/15-11/30	49	- 64	S	8/15-11/30	49	- 64
0435	Glen Shelton	S	6/15-9/30	18	+ 3	S	6/15-9/30	18	+ 3
0436	Shirley	S	8/15-11/14	64	0	S	8/15-11/14	64	0
0437	Cliff Lake	S	6/1-11/30	7	- 1	S	6/1-11/30	7	- 1
0438	Sitz	S	3/1-1/15	18	- 16	S	3/1-1/15	18	- 16
0440	Willow Creek	S	7/15-10/30	41	- 123	S	7/15-10/30	41	- 123
0444	Moran	S	5/1-9/30	33	+ 8	S	5/1-9/30	33	+ 8
0451	Minnie Creek	S	6/1-8/15	32	- 11	S	6/1-8/15	32	- 11
0452	Armitage	S	5/1-10/30	32	- 3	S	5/1-10/30	32	- 3
0454	Walker Creek	S	5/1-11/30	44	- 125	S	5/1-11/30	44	- 125
0455	Butts	S	10/1-12/1	14	0	S	10/1-12/1	14	0
0457*	Bar Seven	S	5/1-11/30	372	- 263	S	5/1-11/30	372	- 263
0458	Whitney	S	5/1-11/30	15	- 9	S	5/1-11/30	15	- 9
0460*	Sun Ranch	S	6/1-10/15	82	- 168	S	6/1-10/15	82	- 168
0461	CB Ranch	S	12/1-7/1	68	- 2	S	12/1-7/1	68	- 2
0462	Squaw Creek	S	8/1-10/15	104	- 49	S	8/1-10/15	104	- 49
0463	Laurin Canyon	S	8/1-10/31	114	- 29	S	8/1-10/31	114	- 29
0464	Coconougher	S	6/1-8/31	6	- 9	S	6/1-8/31	6	- 9
0465*	Mill Creek-Gustin	S	5/1-5/31	51	- 7	S	5/1-5/31	51	- 7
0470	Nyhart	S	7/15-11/1; 6/1-11/1	85	- 4	S	7/15-11/1; 6/1-11/1	85	- 4
0472	Daems	S	4/1-6/30; 11/1-11/30	12	0	S	4/1-6/30; 11/1-11/30	12	- 0
0473*	Blue Lake	S	6/20-11/1	16	- 18	S	6/20-11/1	16	- 18
0474	Durham	S	9/15-11/30	33	+ 10	S	9/15-11/30	33	+ 10
0476	Elkhorn	S	10/1-5/31	22	- 13	S	10/1-5/31	22	- 13
0477	Elser	S	8/1-9/30	23	- 22	S	8/1-9/30	23	- 22
0478	Funk	S	5/1-10/30	23	- 25	S	5/1-10/30	23	- 25
0480*	Tucker Creek	S	6/1-12/14	16	- 5	S	6/1-12/14	16	- 5
0487	Baker Summit	S	5/1-11/30	26	- 33	S	5/1-11/30	26	- 33
0491*	Black Rock	S	6/10-11/1	147	- 71	S	6/10-11/1	147	- 71
0492	Garnet	S	8/1-10/31	23	- 71	S	8/1-10/31	23	- 71
0493	Pierce Canyon	S	8/1-11/30	75	0	S	8/1-11/30	75	0
0494	Riverlodge	S	8/15-11/15	24	- 11	S	8/15-11/15	24	- 11
0495	Bench Allotment	S	5/1-5/31	21	- 2	S	5/1-5/31	21	- 2
0496	Trout Creek	S	6/1-9/15	37	- 3	S	6/1-9/15	37	- 3
0500	Cedar Creek	S	3/1-10/31	7	- 2	S	3/1-10/31	7	- 2
0502*	Eclipse	S	5/1-11/30	4	0	S	5/1-11/30	4	0
0504	Moorse Creek	S	10/1-12/1	24	0	S	10/1-12/1	24	0
0508	LaMarche Creek	S	5/1-11/30	33	- 7	S	5/1-11/30	33	- 7
0509	Herman Gulch	S	6/1-10/30	7	- 20	S	6/1-10/30	7	- 20

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Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	8/15-11/30	24	- 89	S	8/15-11/30	49	- 64	S	3/1-6/15; 10/15-2/29	113	113
S	6/15-9/30	8	- 7	S	6/15-9/30	18	+ 3	S	5/15-7/1	15	15
S	8/15-11/14	64	0	S	8/15-11/14	64	0	S	5/15-11/14	64	64
S	6/1-11/30	7	- 1	S	6/1-11/30	7	- 1	S	6/1-10/31	8	8
S	3/1-1/15	18	- 16	S	3/1-1/15	18	- 16	S	6/1-10/31	34	34
	Exclude livestock grazing	0	- 164	S	7/15-10/30	41	- 123	S	7/15-10/31	164	164
S	5/1-9/30	18	- 7	S	5/1-9/30	33	+ 8	S	6/1-10/30	25	25
S	6/1-8/15	16	- 27	S	6/1-8/15	32	- 11	S	5/15-11/14	43	43
S	5/1-10/30	16	- 19	S	5/1-10/30	32	- 3	S	5/15-11/14	35	35
S	5/1-11/30	25	- 144	S	5/1-11/30	44	- 125	S	6/1-10/31	169	169
S	10/1-12/1	14	0	S	10/1-12/1	14	0	S	11/1-12/31	14	14
S	5/1-11/30	322	- 313	S	5/1-11/30	372	- 263	S	4/15-1/15	635	635
S	5/1-11/30	15	- 9	S	5/1-11/30	15	- 9	S	5/15-11/14	24	24
S	6/1-10/15	82	- 168	S	6/1-10/15	82	- 168	S	5/15-11/14	250	250
S	12/1-7/1	68	- 2	S	12/1-7/1	68	- 2	S	5/15-11/14	70	70
S	8/1-10/15	44	- 109	S	8/1-10/15	104	- 49	S	6/1-9/30	153	153
S	8/1-10/31	114	- 29	S	8/1-10/31	114	- 29	S	7/1-10/31	143	143
S	6/1-8/31	6	- 9	S	6/1-8/31	6	- 9	S	6/1-9/1	15	15
	Exclude livestock grazing	0	- 58	S	5/1-5/31	51	- 7	S	12/1-2/28; 6/15-10/1	58	58
S	7/15-11/1; 6/1-11/1	85	- 4	S	7/15-11/1; 6/1-11/1	85	- 4	S	6/1-11/1	89	89
S	4/1-6/30; 11/1-11/30	12	0	S	4/1-6/30; 11/1-11/30	12	0	S	5/15-11/14	12	12
S	6/20-11/1	16	- 18	S	6/20-11/1	16	- 18	S	6/20-11/1	34	34
S	9/15-11/30	33	+ 10	S	9/15-11/30	33	+ 10	S	6/15-8/30	23	23
S	10/1-5/31	22	- 13	S	10/1-5/31	22	- 13	S	5/15-11/14	35	35
RR	6/1-7/30;8/1-9/15	23	- 22	S	8/1-9/30	23	- 22	S	6/1-11/30	45	45
S	5/1-10/30	23	- 25	S	5/1-10/30	23	- 25	S	6/1-9/30	48	48
S	6/1-12/14	16	- 5	S	6/1-12/14	16	- 5	S	6/1-12/14	21	21
S	5/1-11/30	26	- 33	S	5/1-11/30	26	- 33	S	5/15-11/14	59	59
S	6/10-11/1	97	- 121	S	6/10-11/1	147	- 71	S	5/15-10/31	218	218
S	8/1-10/31	23	- 71	S	8/1-10/31	23	- 71	S	5/15-10/14	94	94
RR	8/1-9/30;10/1-11/30	38	- 37	S	8/1-11/30	75	0	S	5/15-11/14	75	75
S	8/15-11/15	12	- 23	S	8/15-11/15	24	- 11	S	6/1-11/1	35	35
S	5/1-5/31	21	- 2	S	5/1-5/31	21	- 2	S	5/1-6/1	23	23
S	6/1-9/15	19	- 21	S	6/1-9/15	37	- 3	S	7/1-9/15	40	40
S	3/1-10/31	7	- 2	S	3/1-10/31	7	- 2	S	5/15-11/14	9	9
S	5/1-11/30	4	0	S	5/1-11/30	4	0	S	5/15-11/14	4	4
S	10/1-12/1	24	0	S	10/1-12/1	24	0	S	5/15-11/30	24	24
S	5/1-11/30	33	- 7	S	5/1-11/30	33	- 7	S	5/15-11/14	40	40
S	6/1-10/30	7	- 20	S	6/1-10/30	7	- 20	S	6/1-10/30	27	27

Allotment Number	Allotment Name	Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
		Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0511	Hoffman Creek	S	6/15-12/31	35	- 1	S	6/15-12/31	35	- 1
0513	Big Sheep	S	5/19-2/28	73	- 34	S	5/19-2/28	73	- 34
0514	Hillside	S	10/1-3/1	29	- 29	S	10/1-3/1	29	- 29
0517	Red Canyon	S	5/1-10/30	63	- 108	S	5/1-10/30	63	- 108
0524	Riverside	S	8/1-9/30	122	+ 10	S	8/1-9/30	122	+ 10
0527	Spring Canyon	S	7/15-10/1	38	- 18	S	7/15-10/1	38	- 18
0528	Spear Place	S	7/1-10/10	89	- 52	S	7/1-10/10	89	- 52
0529	McAtee Bridge	S	11/1-6/1	82	+ 4	S	11/1-6/1	82	+ 4
0534	Carter Creek	S	6/1-11/30	63	- 34	S	6/1-11/30	63	- 34
0536	Antelope Gulch	S	5/1-10/31	3	- 2	S	5/1-10/31	3	- 2
0537	Beaverhead Rock	S	5/15-6/20	5	- 2	S	5/15-6/20	5	- 2
0539	Kelly Meridian	S	5/15-6/30	32	0	S	5/15-6/30	32	0
0540	Aspen Creek	S	8/15-10/30	63	+ 2	S	8/15-10/30	63	+ 2
0541	York Gulch	S	5/25-6/1	7	- 3	S	5/25-6/1	7	- 3
0542	Hritsco	S	9/23-9/30; 6/1-10/15	30	- 19	S	9/23-9/30; 6/1-10/15	30	- 19
0545	Aqueduct	S	6/1-12/30	4	- 1	S	6/1-12/30	4	- 1
0547	Valley Garden	S	5/1-11/30	30	- 3	S	5/1-11/30	30	- 3
0550	Madison Valley Holding Pasture	S	5/20-6/25	23	- 7	S	5/20-6/25	23	- 7
0601*	Garden	S	5/15-11/1	66	- 41	S	5/15-11/1	66	- 41
0602	Hildreth 1A	S	6/1-6/15;11/15-12/31; rest	32	0	S	6/1-6/15;11/15-12/31; rest	32	0
0603*	Kingfisher	S	7/10-8/15; 5/20-8/15; 11/1-12/1	96	+ 2	S	7/10-8/15; 5/20-8/15; 11/1-12/1	96	+ 2
0604*	Little Spring Gulch	S	5/20-6/20	286	- 211	S	5/20-6/20	286	- 211
0605*	Lovell's Lake	S	10/15-1/1; 5/1-11/30	24	0	S	10/15-1/1; 5/1-11/30	24	0
0606*	Leadore	S	10/1-5/15	7	+ 3		10/1-5/15	7	+ 3
0607*	Snowline AMP Custodial	S	6/1-10/31	632	- 7	S	6/1-10/31	632	- 7
0608*	PHW	S	9/1-12/31	8	- 1	S	9/1-12/31	8	- 1
0609*	Red Mine	S	5/1-11/30	2	0	S	5/1-11/30	2	0
0610*	Price Creek	S	5/1-11/30	12	0	S	5/1-11/30	12	0
0611*	Meadow Creek	S	5/1-11/30	40	0	S	5/1-11/30	40	0
0612*	Four Eyes	S	10/1-5/15	25	- 3	S	10/1-5/15	25	- 3
0613*	Hanson-Medicine Lodge	S	9/1-5/15	67	+ 8	S	9/1-5/15	67	+ 8
0614*	Hanson-Brown	S	9/1-12/31	48	+ 5	S	9/1-12/31	48	+ 5
0615*	Buhler	S	6/1-10/30	130	+ 46	S	6/1-10/30	130	+ 46
0616	Willy	S	7/1-9/30	45	0	S	7/1-9/30	45	0
0617*	Holland-Buffalo Creek	S	4/1-9/3	111	- 36	S	4/1-9/3	111	- 36
0618*	Holland-Carroll	S	6/6-7/15	9	- 2	S	6/6-7/15	9	- 2
0619*	Holland-Bannack Road	S	5/15-11/30	16	- 6	S	5/15-11/30	16	- 6

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	6/15-12/31	35	- 1	S	6/15-12/31	35	- 1	S	6/15-12/31	36	36
S	5/19-2/28	73	- 34	S	5/19-2/28	73	- 34	S	5/1-11/19	107	107
S	10/1-3/1	29	- 29	S	10/1-3/1	29	- 29	S	9/1-11/30	58	58
S	5/1-10/30	63	- 108	S	5/1-10/30	63	- 108	S	7/1-10/15	171	171
RR	6/15-7/15;7/15-8/15	82	- 30	S	8/1-9/30	122	+ 10	S	6/1-9/30	112	112
S	7/15-10/1	38	- 18	S	7/15-10/1	38	- 18	S	7/15-10/1	56	56
S	7/1-10/10	89	- 52	S	7/1-10/10	89	- 52	S	7/1-10/10	141	141
	Exclude livestock grazing	0	- 78	S	11/1-6/1	82	+ 4	S	5/15-11/14	78	78
S	6/1-11/30	63	- 34	S	6/1-11/30	63	- 34	S	5/15-11/14	97	97
S	5/1-10/31	3	- 2	S	5/1-10/31	3	- 2	S	5/20-10/1	5	5
S	5/15-6/20	5	- 2	S	5/15-6/20	5	- 2	S	5/15-6/20	7	7
S	5/15-6/30	32	0	S	5/15-6/30	32	0	S	5/15-11/14	32	32
	Exclude livestock grazing	0	- 61	S	8/15-10/30	63	+ 2	S	5/15-11/14	61	61
S	5/25-6/1	7	- 3	S	5/25-6/1	7	- 3	S	5/15-10/15	10	10
S	9/23-9/30; 6/1-10/15	30	- 19	S	9/23-9/30; 6/1-10/15	30	- 19	S	6/1-10/15	49	49
S	6/1-12/30	4	- 1	S	6/1-12/30	4	- 1	S	6/1-9/30	5	5
S	5/1-11/30	30	- 3	S	5/1-11/30	30	- 3	S	6/1-9/15	33	33
RR	5/1-7/31; 8/1-11/30	13	- 17	S	5/20-6/25	23	- 7	S	5/20-6/25	30	30
RR	6/15-7/15;7/15-8/30	66	- 41	S	5/15-11/1	66	- 41	S	5/15-6/30	107	107
S	6/1-6/15;11/15-12/31; rest	32	0	S	6/1-6/15;11/15-12/31; rest	32	0	S	6/1-12/31	32	32
	Exclude livestock grazing	0	- 94	S	7/10-8/15; 5/20-8/15; 11/1-12/1	96	+ 2	S	5/20-6/19	94	94
S	5/20-6/20	246	- 251	S	5/20-6/20	286	- 211	S	3/1-6/30	497	497
	Exclude livestock grazing	0	- 24	S	10/15-1/1; 5/1-11/30	24	0	S	5/1-12/31	24	24
S	10/1-5/15	7	+ 3	S	10/1-5/15	7	+ 3	S	11/1-12/31	4	4
S	6/1-10/31	632	- 7	S	6/1-10/31	632	- 7	S	7/1-2/29	639	639
S	9/1-12/31	8	- 1	S	9/1-12/31	8	- 1	S	8/15-9/30	9	9
S	5/1-11/30	2	0	S	5/1-11/30	2	0	S	5/15-11/14	2	2
S	5/1-11/30	12	0	S	5/1-11/30	12	0	S	7/1-12/15	12	12
RR	5/15-7/1	40	0	S	5/1-11/30	40	0	S	6/16-9/30	40	40
	Exclude livestock grazing	0	- 28	S	10/1-5/15	25	- 3	S	5/15-12/31	28	28
S	9/1-5/15	67	+ 8	S	9/1-5/15	67	+ 8	S	5/15-11/14	59	59
S	9/1-12/31	48	+ 5	S	9/1-12/31	48	+ 5	S	10/1-10/15	43	43
S	6/1-10/30	130	+ 46	S	6/1-10/30	130	+ 46	S	6/1-11/30	84	84
S	7/1-9/30	45	0	S	7/1-9/30	45	0	S	6/1-9/30	45	45
S	4/1-9/3	111	- 36	S	4/1-9/3	111	- 36	S	5/15-11/14	147	147
	Exclude livestock grazing	0	- 11	S	6/6-7/15	9	- 2	S	6/16-9/15	11	11
S	5/15-11/30	6	- 16	S	5/15-11/30	16	- 6	S	5/15-11/14	22	22

		Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
Allot-ment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0620*	Dell	S	5/1-11/30	15	+ 1	S	5/15-11/30	15	+ 1
0621*	Huntsman	S	7/1-9/30	132	- 111	S	7/1-9/30	132	- 111
0622*	Detton	S	5/15-12/31	48	- 2	S	5/15-12/31	48	- 2
0623*	Dillon	S	6/1-10/30	10	+ 1	S	6/1-10/30	10	+ 1
0624*	Knox	S	5/1-10/31	58	- 16	S	5/1-10/31	58	- 16
0625*	Kent	S	5/18-1/10	11	0	S	5/18-1/10	11	0
0626*	Shesser-Horse Prairie	S	6/1-11/30	4	0	S	6/1-11/30	4	0
0627*	Shesser-Stoll Tract	S	6/15-11/30	20	+ 4	S	6/15-11/30	20	+ 4
0628*	Rocky Hills	S	5/15-11/30	7	0	S	5/15-11/30	7	0
0629*	Rocky Hills-Painter Cr.	S	5/15-11/30	16	0	S	5/15-11/30	16	0
0630*	Red Butte	S	4/1-10/30	14	+ 1	S	4/1-10/30	14	+ 1
0631*	Robb Creek	S	6/1-11/30	44	- 7	S	6/1-11/30	44	- 7
0632*	Timber Butte	S	5/1-11/30	19	- 12	S	5/1-11/30	19	- 12
0633*	Saier Ind. S.G.C.	S	4/15-11/30	6	0	S	4/15-11/30	6	0
0634*	Henneberry Ridge	S	5/1-10/30	9	0	S	5/1-10/30	9	0
0635*	Gallagher	S	6/1-9/31	135	- 99	S	6/1-9/31	135	- 99
0636*	Moss	S	3/1-11/30	107	+ 5	S	3/1-11/30	107	+ 5
0637*	Rody	S	6/1-11/30	17	+ 2	S	6/1-11/30	17	+ 2
0638*	Cottonwood Creek	S	7/1-10/30	133	+ 17	S	7/1-10/30	133	+ 17
0640*	Wheat	S	5/15-11/30	9	- 29	S	5/15-11/30	9	- 29
0641*	Allotment B	S	5/1-11/30	7	- 1	S	5/1-11/30	7	- 1
0642*	Truax Creek	S	6/1-12/31	92	- 5	S	6/1-12/31	92	- 5
0643*	Orphan	S	6/1-12/31	12	- 2	S	6/1-12/31	12	- 2
0644*	Whitworth	S	10/1-5/15	5	- 1	S	10/1-5/15	5	- 1
0645*	Horse Prairie-Bloody Dick	S	7/15-9/14	105	- 116	S	7/15-9/14	105	- 116
0646*	Horse Prairie-Station Creek	S	10/15-5/14	10	- 8	S	10/15-5/14	10	- 8
0647*	Horse Prairie-North Frying Pan	S	6/1-11/30	3	- 5	S	6/1-11/30	3	- 5
0648*	Sand Dunes	S	6/1-10/31	24	- 9	S	6/1-10/31	24	- 9
0649*	Snowcrest	S	6/1-12/30	5	0	S	6/1-12/30	5	0
0650*	Forsythe	S	6/15-11/30	75	- 15	S	6/15-11/30	75	- 15
0651*	Chaffin	S	6/16-7/15	110	+ 26	S	6/16-7/15	110	+ 26
0652*	Lichtenberg	S	10/1-10/10; 6/1-11/30	43	- 39	S	10/1-10/10; 6/1-11/30	43	- 39
0653*	Medicine Lodge	S	10/1-5/15	50	+ 4	S	10/1-5/15	50	+ 4
0654*	Donovan	S	5/15-11/30	105	- 62	S	5/15-11/30	105	- 62
0655*	Mansfield	S	10/1-5/15	10	+ 4	S	10/1-5/15	10	+ 4
0656*	Crazy Springs	S	3/1-6/30	225	- 154	S	3/1-6/30	225	- 154
0657*	Burk	S	5/16-6/30	7	- 8	S	5/16-6/30	7	- 8

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	5/1-11/30	15	+ 1	S	5/1-11/30	15	+ 1	S	5/6-9/30	14	14
S	7/1-9/30	66	- 177	S	7/1-9/30	132	- 111	S	7/1-9/30	243	243
S	5/15-12/31	48	- 2	S	5/15-12/31	48	- 2	S	11/1-12/31	50	50
S	6/1-10/30	10	+ 1	S	6/1-10/30	10	+ 1	S	3/1-7/19; 10/12-2/28	9	9
S	5/1-10/31	28	- 46	S	5/1-10/31	58	- 16	S	3/1-11/31	74	74
S	5/18-1/10	5	- 6	S	5/18-1/10	11	0	S	6/15-10/31	11	11
	Exclude livestock grazing	0	- 4	S	6/1-11/30	4	0	S	7/1-9/30	4	4
	Exclude livestock grazing	0	- 16	S	6/15-11/30	20	+ 4	S	7/1-9/30	16	16
S	5/15-11/30	7	0	S	5/15-11/30	7	0	S	5/15-11/14	7	7
	Exclude livestock grazing	0	- 16	S	5/15-11/30	16	0	S	5/15-11/14	16	16
S	4/1-10/30	14	+ 1	S	4/1-10/30	14	+ 1	S	5/15-11/14	13	13
S	6/1-11/30	44	- 7	S	6/1-11/30	44	- 7	S	8/1-8/30	51	51
S	5/1-11/30	19	- 12	S	5/1-11/30	19	- 12	S	11/15-12/31	31	31
S	4/15-11/30	6	0	S	4/15-11/30	6	0	S	5/15-11/14	6	6
S	5/1-10/30	9	0	S	5/1-10/30	9	0	S	6/25-10/15	9	9
S	6/1-9/31	55	- 179	S	6/1-9/31	135	- 99	S	9/1-10/31	234	234
S	3/1-11/30	52	- 50	S	3/1-11/30	107	+ 5	S	12/1-1/4	102	102
	Exclude livestock grazing	0	- 15	S	6/1-11/30	17	+ 2	S	6/1-9/30	15	15
S	7/1-10/30	133	+ 17	S	7/1-10/30	133	+ 17	S	5/15-7/1	116	116
S	5/15-11/30	9	- 29	S	5/15-11/30	9	- 29	S	11/15-12/14	38	38
S	5/1-11/30	7	- 1	S	5/1-11/30	7	- 1	S	5/15-11/14	8	8
RR	6/16-10/15	24	- 73	S	6/1-12/31	92	- 5	S	6/1-10/31	97	97
S	6/1-12/31	12	- 2	S	6/1-12/31	12	- 2	S	6/1-10/31	14	14
S	10/1-5/15	5	- 1	S	10/1-5/15	5	- 1	S	6/10-7/30	6	6
RR	6/15-7/15; 7/15-8/15	25	- 196	S	7/15-9/14	105	- 116	S	5/15-11/14	221	221
	Exclude livestock grazing	0	- 18	S	10/15-5/14	10	- 8	S	5/15-11/14	18	18
S	6/1-11/30	3	- 5	S	6/1-11/30	3	- 5	S	5/15-11/14	8	8
S	6/1-10/31	24	- 9	S	6/1-10/31	24	- 9	S	6/19-7/31	33	33
	Exclude livestock grazing	0	- 5	S	6/1-12/30	5	0	S	5/15-11/14	5	5
S	7/15-11/30	37	- 53	S	6/15-11/30	75	- 15	S	5/15-10/31	90	90
	Exclude livestock grazing	0	- 84	S	6/16-7/15	110	+ 26	S	6/16-7/15	84	84
	Exclude livestock grazing	0	- 82	S	10/1-10/10; 6/1-11/30	43	- 39	S	6/1-9/15	82	82
S	10/1-5/15	25	- 21	S	10/1-5/15	50	+ 4	S	5/15-6/30	46	46
S	5/15-11/30	105	- 62	S	5/15-11/30	105	- 62	S	6/15-8/31	167	167
S	10/1-5/15	10	+ 4	S	10/1-5/15	10	+ 4	S	5/14-6/31	6	6
S	3/1-6/30	225	- 154	S	3/1-6/30	225	- 154	S	3/1-9/9; 11/1-11/30	379	379
S	5/16-6/30	7	- 8	S	5/16-6/30	7	- 8	S	5/16-6/30	15	15

Allotment Number	Allotment Name	Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
		Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0658*	Nelson	S	10/2-10/17	5	- 2	S	10/2-10/17	5	- 2
0659*	Devil's Dancehall	S	6/1-11/30	42	- 53	S	6/1-11/30	42	- 53
0660*	Deno Creek	S	6/1-6/30	5	- 5	S	6/1-6/30	5	- 5
0661*	Rochester Basin	S	5/1-11/30	273	- 109	S	5/1-11/30	273	- 109
0662*	O.H.S.	S	7/1-9/25	2	- 1	S	7/1-9/25	2	- 1
0663*	Rice Ranches	S	4/1-11/30	195	- 86	S	4/1-11/30	195	- 86
0664*	Wall Canyon	S	6/1-10/30	2	- 1	S	6/1-10/30	2	- 1
0665*	Belmont	S	6/1-10/30	217	- 111	S	6/1-10/30	217	- 111
0666*	Sweetwater Basin	S	5/1-6/1	23	- 15	S	5/1-6/1	23	- 15
0667*	Fossil Basin	S	5/15-11/1	64	- 39	S	5/15-11/1	64	- 39
0668*	Tucker-Feely Tract	S	6/1-12/15	40	- 10	S	6/1-12/15	40	- 10
0669*	Granite-Moore	S	6/1-11/30	92	- 62	S	6/1-11/30	92	- 62
0670*	Sodak Mine	S	10/1-5/31	167	+ 11	S	10/1-5/31	167	+ 11
0671*	Virginia City Custodial	S	6/1-11/30	160	- 234	S	6/1-11/30	160	- 234
0672*	Belle	S	8/1-10/15	23	- 33	S	8/1-10/15	23	- 33
0673*	Hungry Hollow	S	5/15-6/10	30	- 15	S	5/15-6/10	30	- 15
0676*	Idaho	S	8/15-10/31	37	- 25	S	8/15-10/31	37	- 25
0677*	Spring Brook	S	4/15-12/31	259	- 153	S	4/15-12/31	259	- 153
0678*	Lark	S	5/1-11/30	89	- 95	S	5/1-11/30	89	- 95
0679*	Sand Coulee	S	6/1-10/10	47	- 61	S	6/1-10/10	47	- 61
0681*	Timber Creek	S	6/1-10/15	9	- 7	S	6/1-10/15	9	- 7
0682*	Ruby Dam	S	7/1-9/30	5	0	S	7/1-9/30	5	0
0704	Cabin Creek	S	6/15-10/30	60	+ 22	S	6/15-10/30	60	+ 22
0705	Wildwood Land & Cattle Co.	S	6/26-9/30	26	- 20	S	6/26-9/30	26	- 20
0707	Stibal	S	4/15-11/30	234	+ 183	S	4/15-11/30	234	+ 183
0712	Slanger	S	6/1-8/30	22	+ 4	S	6/1-8/30	22	+ 4
0715	Turner	S	6/1-10/30	76	- 44	S	6/1-10/30	76	- 44
0717	Stanford	S	4/1-11/30	86	- 92	S	4/1-11/30	86	- 92
0718	Farley-Shale	S	6/15-10/30	4	- 28	S	6/15-10/30	4	- 28
0719	Snowline Isolated	S	6/1-10/15	164	+ 140	S	6/1-10/15	164	+ 140
0723	Reservoir Creek	S	7/1-8/14	11	- 19	S	7/1-8/14	11	- 19
0729	Roe Ranch	S	4/1-10/30	14	+ 11	S	4/1-10/30	14	+ 11
0731	G. W. Jones	S	6/1-10/15	26	- 15	S	6/1-10/15	26	- 15
0733	Holton Brothers	S	6/1-11/30	75	0	S	6/1-11/30	75	0
0737	Davis	S	6/1-10/1	18	- 6	S	6/1-10/1	18	- 6
0742	Clemow Ranches	S	5/1-12/30	32	+ 16	S	5/1-12/30	32	+ 16
0744	Lester Else Ranch	S	7/1-12/31	10	+ 5	S	7/1-12/31	10	+ 5

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	10/2-10/17	5	– 2	S	10/2-10/17	5	– 2	S	10/2-10/15	7	7
S	6/1-11/30	42	– 53	S	6/1-11/30	42	– 53	S	5/1-5/31	95	95
S	6/1-6/30	5	– 5	S	6/1-6/30	5	– 5	S	6/1-6/30	10	10
S	5/1-11/30	136	– 246	S	5/1-11/30	273	– 109	S	6/1-2/28	382	382
S	7/1-9/25	2	– 1	S	7/1-9/25	2	– 1	S	5/15-10/31	3	3
S	4/1-11/30	195	– 86	S	4/1-11/30	195	– 86	S	5/15-12/1	281	281
	Exclude livestock grazing	0	– 3	S	6/1-10/30	2	– 1	S	5/15-11/14	3	3
S	6/1-10/30	109	– 219	S	6/1-10/30	217	– 111	S	3/1-2/28	328	328
S	5/1-6/1	23	– 15	S	5/1-6/1	23	– 15	S	5/20-10/19	38	38
S	5/15-11/1	32	– 71	S	5/15-11/1	64	– 39	S	5/15-10/31	103	103
S	6/1-12/15	20	– 30	S	6/1-12/15	40	– 10	S	6/1-12/14	50	50
S	7/1-11/30	61	– 93	S	6/1-11/30	92	– 62	S	7/1-10/15	154	154
S	10/1-5/31	167	+ 11	S	10/1-5/31	167	+ 11	S	5/1-2/10	156	156
S	6/1-11/30	160	– 234	S	6/1-11/30	160	– 234	S	6/1-9/30	394	394
S	8/1-10/15	23	– 33	S	8/1-10/15	23	– 33	S	6/1-9/30	56	56
S	5/15-6/10	30	– 15	S	5/15-6/10	30	– 15	S	5/15-10/31	45	45
S	8/15-10/31	37	– 25	S	8/15-10/31	37	– 25	S	7/1-9/30	62	62
S	4/15-12/31	129	– 283	S	4/15-12/31	259	– 153	S	5/1-12/9	412	412
S	5/1-11/30	89	– 95	S	5/1-11/30	89	– 95	S	3/1-2/28	184	184
	Exclude livestock grazing	0	– 108	S	6/1-10/10	47	– 61	S	5/1-11/15	108	108
	Exclude livestock grazing	0	– 16	S	6/1-10/15	9	– 7	S	6/1-10/15	16	16
S	7/1-9/30	5	0	S	7/1-9/30	5	0	S	5/10-12/9	5	5
S	6/15-10/30	60	+ 22	S	6/15-10/30	60	+ 22	S	5/1-5/8	38	38
S	6/26-9/30	26	– 20	S	6/26-9/30	26	– 20	S	6/26-9/30	46	46
S	8/1-11/30	182	+ 131	S	4/15-11/30	234	+ 183	S	5/15-11/14	51	51
S	6/1-8/30	22	+ 4	S	6/1-8/30	22	+ 4	S	5/15-11/14	18	18
S	6/1-10/30	76	– 44	S	6/1-10/30	76	– 44	S	6/1-10/31	120	120
S	4/1-11/30	86	– 92	S	4/1-11/30	86	– 92	S	3/1-6/5; 12/6-2/28	178	178
S	6/15-10/30	4	– 28	S	6/15-10/30	4	– 28	S	5/15-11/14	32	32
S	6/1-10/15	129	+ 105	S	6/1-10/15	164	+ 140	S	6/10-10/15	24	24
S	7/1-8/14	11	– 19	S	7/1-8/14	11	– 19	S	5/15-11/14	30	30
S	4/1-10/30	14	+ 11	S	4/1-10/30	14	+ 11	S	9/15-11/14	3	3
	Exclude livestock grazing	0	– 41	S	6/1-10/15	26	– 15	S	5/15-11/14	41	41
S	6/1-11/30	25	– 50	S	6/1-11/30	75	0	S	5/15-11/14	75	75
S	6/1-10/1	18	– 6	S	6/1-10/1	18	– 6	S	3/1-2/28	24	24
S	5/1-12/30	16	0	S	5/1-12/30	32	+ 16	S	5/15-11/14	16	16
S	7/1-12/31	10	+ 5	S	7/1-12/31	10	+ 5	S	5/15-7/31	5	5

		Alternative A Proposed Grazing Management Program					Alternative B Limited Action		
Allotment Number	Allotment Name	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0746	McKnight Creek	S	6/1-11/30	304	+ 160	S	6/1-11/30	304	+ 160
0751	Mill Point	S	5/1-6/30; 10/15-12/30	103	+ 50	S	5/1-6/30; 10/15-12/30	103	+ 50
0754	Barrett Ranch	S	10/1-5/15; 6/15-11/30	2	- 8	S	10/1-5/15; 6/15-11/30	2	- 8
0755	Alkali Creek	S	5/1-8/30	61	- 26	S	5/1-8/30	61	- 26
0756	Frenchie Creek	S	5/15-11/30	9	0	S	5/15-11/30	9	0
0759	Road Agent Rock	S	5/15-11/30	41	+ 30	S	5/15-11/30	41	+ 30
0760	Shaffner	S	11/1-6/1	17	- 10	S	11/1-6/1	17	- 10
0762	Pierce S.G.C.	S	6/1-10/31	26	- 1	S	6/1-10/31	26	- 1
Subtotal, Non-AMPs				16,461				16,461	
Unallotted Areas									
Unlsd.	Aspen	U	N/A	0	0	U	N/A	0	0
Unlsd.	Badger	U	N/A	0	0	U	N/A	0	0
Unlsd.	Bear Gulch	U	N/A	0	0	U	N/A	0	0
Unlsd.	Blain Spring	U	N/A	0	0	U	N/A	0	0
Unlsd.	Bureau of Reclamation	U	N/A	0	0	U	N/A	0	0
Unlsd.	Caboose Canyon	U	N/A	0	0	U	N/A	0	0
Unlsd.	Charcoal Mountain	U	N/A	0	0	U	N/A	0	0
Unlsd.	Clovis Gulch	U	N/A	0	0	U	N/A	0	0
Unlsd.	Deadwood Gulch	U	N/A	0	0	U	N/A	0	0
Unlsd.	Dog Paw	U	N/A	0	0	U	N/A	0	0
Unlsd.	Dog Town	U	N/A	0	0	U	N/A	0	0
Unlsd.	Dry Creek	U	N/A	0	0	U	N/A	0	0
Unlsd.	East Fork	U	N/A	0	0	U	N/A	0	0
Unlsd.	Fox Gulch	U	N/A	0	0	U	N/A	0	0
Unlsd.	Game Range	U	N/A	0	0	U	N/A	0	0
Unlsd.	Goat Mountain	U	N/A	0	0	U	N/A	0	0
Unlsd.	Irishman's	U	N/A	0	0	U	N/A	0	0
Unlsd.	Lodgepole	U	N/A	0	0	U	N/A	0	0
Unlsd.	Mahogany	U	N/A	0	0	U	N/A	0	0
Unlsd.	Maiden Rock	U	N/A	0	0	U	N/A	0	0
Unlsd.	Montana Unleased	U	N/A	0	0	U	N/A	0	0
Unlsd.	Pony	U	N/A	0	0	U	N/A	0	0
Unlsd.	Red Bluff	U	N/A	0	0	U	N/A	0	0
Unlsd.	Red Mtn. Campground	U	N/A	0	0	U	N/A	0	0
Unlsd.	Retort Mountain	U	N/A	0	0	U	N/A	0	0
Unlsd.	Rosy Finch	U	N/A	0	0	U	N/A	0	0
Unlsd.	Ruby Mountain	U	N/A	0	0	U	N/A	0	0
Unlsd.	Sand Creek	U	N/A	0	0	U	N/A	0	0
Unlsd.	Sandpiper	U	N/A	0	0	U	N/A	0	0
Unlsd.	Sheep Mountain	U	N/A	0	0	U	N/A	0	0
Unlsd.	Shepherd's Cross	U	N/A	0	0	U	N/A	0	0
Unlsd.	Shrike	U	N/A	0	0	U	N/A	0	0
Unlsd.	Snowberry	U	N/A	0	0	U	N/A	0	0
Unlsd.	Sourdough	U	N/A	0	0	U	N/A	0	0
Unlsd.	Swamp Creek	U	N/A	0	0	U	N/A	0	0
Unlsd.	Two Heart	U	N/A	0	0	U	N/A	0	0
0431	Harry Shaw	U	N/A	0	- 4	U	N/A	0	- 4
0503	Wigwam Creek	U	N/A	0	- 49	U	N/A	0	- 49
0505	MCCSA	U	N/A	0	- 11	U	N/A	0	- 11
0515	Big Hole	U	N/A	0	- 15	U	N/A	0	- 15
0520	Overnite	U	N/A	0	- 1	U	N/A	0	- 1

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
S	6/1-11/30	304	+ 160	S	6/1-11/30	304	+ 160	S	6/1-11/30	144	144
S	5/1-6/30; 10/15-12/30	103	+ 50	S	5/1-6/30; 10/15-12/30	103	+ 50	S	5/15-11/14	53	53
S	10/1-5/15; 6/15-11/30	2	- 8	S	10/1-5/15; 6/15-11/30	2	- 8	S	5/15-11/14	10	10
S	5/1-8/30	61	- 26	S	5/1-8/30	61	- 26	S	5/15-11/14	87	87
S	5/15-11/30	9	0	S	5/15-11/30	9	0	S	5/15-11/14	9	9
	Exclude livestock grazing	0	- 11	S	5/15-11/30	41	+ 30	S	5/15-11/14	11	11
S	11/1-6/1	17	- 10	S	11/1-6/1	17	- 10	S	5/15-11/14	27	27
S	6/1-10/31	26	- 1	S	6/1-10/31	26	- 1	S	5/15-11/14	27	27
		13,088				16,461				19,155	19,155
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	- 4	U	N/A	0	- 4	S	9/1-10/31	4	4
U	N/A	0	- 49	U	N/A	0	- 49	S	6/28-7/19	49	49
U	N/A	0	- 11	U	N/A	0	- 11	S	5/15-11/14	11	11
U	N/A	0	- 15	U	N/A	0	- 15	S	5/15-11/14	15	15
U	N/A	0	- 1	U	N/A	0	- 1	S	5/1-7/31	1	1

Allotment Number	Allotment Name	Alternative A Proposed Grazing Management Program				Alternative B Limited Action			
		Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]
0535	Axes Canyon	U	N/A	0	- 2	U	N/A	0	- 2
0543	Corral Creek	U	N/A	0	- 27	U	N/A	0	- 27
0546	Jumping Horse	U	N/A	0	- 2	U	N/A	0	- 2
0639*	Rio Puerco	U	N/A	0	0	U	N/A	0	0
0674*	Stone Creek	U	N/A	0	0	U	N/A	0	0
0680*	McHessor Creek	U	N/A	0	0	U	N/A	0	0
0701*	Tom Creek	U	N/A	0	0	U	N/A	0	0
0721	Rock-Moose	U	N/A	0	- 91	U	N/A	0	- 91
0724	Flying N	U	N/A	0	- 15	U	N/A	0	- 15
0743	Big Hole Grazing Assn.	U	N/A	0	- 54	U	N/A	0	- 54
Subtotal, Unallotted Areas				0				0	
Total, EIS Study Area				110,033				110,033	

*Refer to Appendix 8, table 8B, Allotment Name and Number Cross-reference, under proposed action, to determine the current situation. **Alternative F is not shown on this table because there would be no grazing under that alternative. The only improvement under Alternative F would be 2,700 miles of fencing, at a total improvement cost of $5,981,600.

SOURCE: BLM, 1979.

a. AUM adjustments shown are stocking level changes compared to the current permitted use identified in Alternative E. The average actual use is used for current permitted use on existing and revised AMPs. The net change in AUMs is indicated for each allotment by "+" for increase, "-" for decrease, and "0" for no change.

b. Current permitted use was replaced by average actual use on existing and revised AMPs.

Alternative C Better Watershed Values/Wildlife Habitat				Alternative D Accelerated Livestock Forage Development				Alternative E No Action			
Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	AUM Adjustment[a]	Grazing System	Season of Use	Stocking Level	Current Permitted Use[b]
U	N/A	0	-2	U	N/A	0	-2	S	7/1-8/30	2	2
U	N/A	0	-27	U	N/A	0	-27	S	5/15-11/14	27	27
U	N/A	0	-2	U	N/A	0	-2	S	11/1-11/30	2	2
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	0	U	N/A	0	0	U	N/A	0	0
U	N/A	0	-91	U	N/A	0	-91	S	6/26-9/25	91	91
U	N/A	0	-15	U	N/A	0	-15	S	5/15-11/14	15	15
U	N/A	0	-54	U	N/A	0	-54	S	6/15-7/31	54	54
		0				0				271	271
		74,785				162,774				125,377	125,377

APPENDIX 14: PROPOSED RANGE DEVELOPMENTS AND AMP IMPLEMENTATION SCHEDULE BY ALTERNATIVE

Fiscal Year 1981
(Unless otherwise noted, the year of survey and design would be 1980, and construction would be done in 1981.)

		Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
Allot-ment No.	Allotment Name	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development*	Units	Acres Dis-turbed	Estimated Development Costs	Development#	Units	Acres Dis-turbed	Estimated Development Costs
Existing AMPs																	
0013	Gallagher Mountain	Alter fence	28.40 mi	--	$ 4,544	Alter fence	28.40 mi	--	$ 4,544	Alter fence New fence Fence removal	28.40 mi 12.00 mi 2.50 mi	-- 12.00 --	$ 4,544 26,400 1,000 $ 31,944				
0014	Barretts	Alter fence	1.25 mi	--	$ 200	Alter fence	1.25 mi	--	$ 200	Alter fence	1.25 mi	--	$ 200				
0015	Bannack	Alter fence	1.75 mi	--	$ 280	Alter fence	1.75 mi	--	$ 280	Alter fence New fence	1.75 mi 5.00 mi	-- 5.00	$ 280 11,000 $ 11,280				
0019	Rape Creek	Alter fence	0.70 mi	--	$ 112	Alter fence	0.70 mi	--	$ 112	Alter fence	0.70 mi	--	$ 112				
0040	Price Creek	None	--	--	--	None	--	--	--	New fence	5.00 mi	5.00	$ 11,000				
0007/ 0008	Armstead-Upper Sage	Alter fence	2.88 mi	--	$ 460.80	Alter fence	2.88 mi	--	$ 460.80	Alter fence	2.88 mi	--	$ 460.80				
0116	Conover	None	--	--	--	None	--	--	--	Fence removal	2.00 mi	--	$ 800				
0268	Iron Rod	None	--	--	--	None	--	--	--	None	--	--	--	Sagebrush burn Sagebrush spray	2,686 ac 5,685 ac	2,686 5,685 8,371	$ 6,715 79,590 $ 86,305
0012	Matador	Alter fence	12.00 mi	--	$ 1,920	Alter fence	12.00 mi	--	$ 1,920	Alter fence	12.00 mi	--	1,920				
0318	Jerry Creek	None	--	--	--	None	--	--	--	Cattleguard (R) Fence removal New fence (R)	2 ea 2.50 mi 0.40 mi	0.04 -- 0.40 0.44	$ 3,400 1,000 880 $ 5,280				
0011	Mosman	Alter fence	5.50 mi	--	$ 880	Alter fence	5.50 mi	--	$ 880	Alter fence	5.50 mi	--	$ 880				
0324	Rochester Basin	None	--	--	--	None	--	--	--	Plow, seed	500 ac	500.00	$ 17,500				
0039	Muddy Creek	Alter fence	1.25 mi	--	$ 200	Alter fence	1.25 mi	--	$ 200	Alter fence	1.25 mi	--	$ 200				
0317	Greenstone	Alter fence	4.50 mi	--	$ 720	Alter fence	4.50 mi	--	$ 720	Alter fence	4.50 mi	--	$ 720				
Revised AMPs with Adjustments Only																	
0009	Junction Seeding	None	--	--	--	None	--	--	--	None	--	--	--				

0010	Crooked Cr.	Alter fence	6.40 mi	--	$ 1,024	Alter fence	6.40 mi	--	$ 1,024	Alter fence New fence	6.40 mi 1.00 mi	-- 1.00	$ 1,024 2,200 $ 3,224				
0016	Chinatown	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640				
0021	Leadman	None	--	--	--	None	--	--	--	None	--	--	--	Sagebrush spray	505 ac	505	$ 7,070
0022	Dixon Mtn.	None	--	--	--	None	--	--	--	None	--	--	--				
0029	Snowline	None	--	--	--	None	--	--	--	None	--	--	--				
0032	Exchange Pasture	None	--	--	--	None	--	--	--	Plow, seed (chisel)	800.00 ac	800	$ 28,000	Plow, seed	831 ac	831	$ 29,085
0041	Rock Creek	Alter fence	1.78 mi	--	$ 284.80	Alter fence	1.78 mi	--	$ 284.80	Alter fence	1.78 mi	--	$ 284.80				
Revised AMPs with Adjustments and Developments																	
0033	Cross Allotment	Alter fence Plow, seed**	7.00 mi 831 ac	-- 831	$ 1,120 29,085 $ 30,205	Alter fence Plow, seed**	7.00 mi 831 ac	-- 831	$ 1,120 29,085 $ 30,205	Alter fence Sagebrush spray	7.00 mi 800 ac	-- 800 800	$ 1,120 11,200 $ 12,320	Plow, seed	2,840 ac	2,840	99,400
Proposed AMPs with Adjustments Only																	
0102	Morrison-Sweeney	None	--	--	--	None	--	--	--	None	--	--	--	Sagebrush spray	400 ac	400	$ 5,600
0107	Porcupine Canyon	None	--	--	--	None	--	--	--	None	--	--	--				
0109	Weldon Buhler	None	--	--	--	None	--	--	--	None	--	--	--				
0113	Red Canyon	Alter fence	2.30 mi	--	$ 368	Alter fence	2.30 mi	--	$ 368	New fence(R) Cattleguard (R) Alter fence	0.25 mi 1 ea 2.30 mi	0.25 0.02 -- 0.27	$ 550 1,700 368 $ 2,618				
0114	Bill Hill Cr.	None	--	--	--	None	--	--	--	None	--	--	--				
0122	Taylor Creek-Buffalo Creek	None	--	--	--	None	--	--	--	None	--	--	--	Plow,seed	5,528 ac	5,528	$ 193,480
0136	Knox	Alter fence	3.50 mi	--	$ 560	Alter fence	3.50 mi	--	$ 560	Alter fence	3.50 mi	--	$ 560				
0138	Kent-Price Canyon	Alter fence	1.75 mi	--	$ 280	Alter fence	1.75 mi	--	$ 280	Alter fence	1.75 mi	--	$ 280				
0145	Lemhi Pass	Alter fence	0.60 mi	--	$ 96	Alter fence	0.60 mi	--	$ 96	Alter fence	0.60 mi	--	$ 96				
0147	Matador-Blacktail	Alter fence	4.70 mi	--	$ 752	Alter fence	4.70 mi	--	$ 752	Alter fence New fence	4.70 mi 2.75 mi	-- 2.75	$ 752 6,050 $ 6,802				
0151	Lima Reservoir	None	--	--	--	None	--	--	--	None	--	--	--				

*(R) indicates that this development was recommended by the recreation specialist. **For Alternatives A and B, the year of survey and design of this development would be 1982. Construction would be done in 1983. # Developments shown are those proposed in addition to those listed in Alternative A.

Fiscal Year 1981

(Unless otherwise noted, the year of survey and design would be 1980, and construction would be done in 1981.)

Allot-ment No.	Allotment Name	Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
		Development	Units	Acres Dis-turbed	Estimated Development Costs	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development*	Units	Acres Dis-turbed	Estimated Development Costs	Development#	Units	Acres Dis-turbed	Estimated Development Costs
0152	Long Creek	Alter fence	10.00 mi	--	$ 1,600	Alter fence	10.00 mi	--	$ 1,600	Alter fence New fence	10.00 mi 1.50 mi	-- 1.50	$ 1,600 3,300 $ 4,900				
0156	Maiden Creek	Alter fence	2.50 mi	--	$ 400	Alter fence	2.50 mi	--	$ 400	Alter fence New fence	2.50 mi 1.30 mi	-- 1.30	$ 400 2,860 $ 3,260				
0158	Simpson Cr.	Alter fence	15.75 mi	--	$ 2,520	Alter fence	15.75 mi	--	$ 2,520	Alter fence	15.75 mi	--	$ 2,520	Sagebrush spray	2,990 ac	2,990	41,860
0159	Shineberger	None	--	--	--	None	--	--	--	Chisel	40.00 ac	40.00	$ 1,400				
0165	Coyote Creek	None	--	--	--	None	--	--	--	None	--	--	--				
0168	Timber Butte	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240				
0169	Saier Ind.	None	--	--	--	None	--	--	--	None	--	--	--				
0173	Gallagher Creek	None	--	--	--	None	--	--	--	None	--	--	--				
0177	Phalarope	None	--	--	--	None	--	--	--	None	--	--	--				
0270	Lima Peaks	None	--	--	--	None	--	--	--	None	--	--	--				
0313	Nelson	None	--	--	--	None	--	--	--	None	--	--	--				
0315	Richards	None	--	--	--	None	--	--	--	None	--	--	--				
0316	Redfern	None	--	--	--	None	--	--	--	None	--	--	--				
0322	Lost Creek	None	--	--	--	None	--	--	--	None	--	--	--				
0341	Deno Creek	None	--	--	--	None	--	--	--	None	--	--	--	Sagebrush burn	430 ac	430	$ 1,075
0353	Lower Rochester Basin	None	--	--	--	None	--	--	--	None	--	--	--				
0377	Sparrow Ditch	Alter fence	0.80 mi.	--	$ 128	Alter fence	0.80 mi	--	$ 128	Alter fence	0.80	--	$ 128				
0385	Windy Pass	None	--	--	--	None	--	--	--	None	--	--	--				
0404	Preacher Cr.	None	--	--	--	None	--	--	--	None	--	--	--				
0459	Bryan	None	--	--	--	None	--	--	--	None	--	--	--				
0475	Mill Gulch	None	--	--	--	None	--	--	--	New fence	2.60 mi	2.60	$ 5,720	Sagebrush burn	340 ac	340	$ 850

0727	Roe Ranch	Alter fence	7.50 mi	--	$ 1,200	Alter fence	7.50 mi	--	$ 1,200	Alter fence	7.50 mi	--	$ 1,200				
0490	Barton Gulch	None	--	--	--	None	--	--	--	None	--	--	--				
0501	Wisconsin Creek	None	--	--	--	None	--	--	--	None	--	--	--				
0507	California Creek	None	--	--	--	None	--	--	--	None	--	--	--				
0510	Rattlesnake	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160				
0516	Spring Brook	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640				
0518	Sweetwater Basin	None	--	--	--	None	--	--	--	None	--	--	--	Sagebrush burn	230 ac	230	$ 575
0702	Thomas	Alter fence	3.80 mi	--	$ 608	Alter fence	3.30 mi	--	$ 528	Alter fence New fence	3.30 mi 1.75 mi	-- 1.75	$ 528 3,850 $ 4,378	Sagebrush spray	320 ac	320	4,480
0706	Wheat	None	--	--	--	None	--	--	--	None	--	--	--				
0710	Staudenmeyer	Alter fence	1.70 mi	--	$ 272	Alter fence	1.70 mi	--	$ 272	Alter fence	1.70 mi	--	$ 272	Sagebrush spray	1,659 ac	1,659	23,226
0714	Wellborn-Dell	Alter fence	0.75 mi	--	$ 120	Alter fence	0.75	--	$ 120	Alter fence	0.75	--	$ 120				
0720	Whitworth	None	--	--	--	None	--	--	--	None	--	--	--				
0722	Small Horn Canyon	None	--	--	--	None	--	--	--	None	--	--	--				
0734	Snowcrest	None	--	--	--	None	--	--	--	None	--	--	--				
0735	Forsythe	None	--	--	--	None	--	--	--	New fence	3.25 mi	3.25	$ 7,150				
0753	Dad Creek	None	--	--	--	None	--	--	--	None	--	--	--				
Non-AMPs																	
Unlsd.	Casey	None	--	--	--	None	--	--	--	Fence removal New fence	0.75 mi 1.25 mi	-- 1.25	$ 300 2,750 $ 3,050				
Unlsd.	Flying N	None	--	--	--	None	--	--	--	Fence removal New fence	2.00 mi 2.50 mi	-- 2.50	$ 800 5,500 $ 6,300				
Unlsd.	Jackrabbit	None	--	--	--	None	--	--	--	Fence removal New fence	0.25 mi 0.50 mi	-- 0.50	$ 100 1,100 $ 1,200				
Unlsd.	Miner Creek	None	--	--	--	None	--	--	--	Fence removal New fence	0.30 mi 0.40 mi	-- 0.40	$ 120 880 $ 1,000				
Unlsd.	Ruddy Duck	None	--	--	--	None	--	--	--	New fence	2.10 mi	2.10	$ 4,620				
Unlsd.	Warm Springs	None	--	--	--	None	--	--	--	New fence	0.50 mi	0.50	$ 1,100				

*(R) indicates that this development was recommended by the recreation specialist.

Developments shown are those proposed in addition to those listed in Alternative A.

Fiscal Year 1981
(Unless otherwise noted, the year of survey and design would be 1980, and construction would be done in 1981.)

		Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
Allot-ment No.	Allotment Name	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development*	Units	Acres Dis-turbed	Estimated Development Costs	Development#	Units	Acres Dis-turbed	Estimated Development Costs
0178	Mooney	None	--	--	--	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300				
0183	Passmore	None	--	--	--	None	--	--	--	New fence	0.50 mi	0.50	$ 1,100				
0717	Stanford	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240				
0191	Farley Polaris	None	--	--	--	None	--	--	--	New fence	3.00 mi	3.00	$ 6,600				
0304	Willow Cr.-Rochester	Alter fence	0.25 mi	--	$ 40	Alter fence	0.25 mi	--	$ 40	Alter fence	0.25 mi	--	$ 40				
0339	Deep Creek	None	--	--	--	None	--	--	--	New fence	0.75 mi	0.75	$ 1,650				
0444	Moran	None	--	--	--	None	--	--	--	New fence	1.20 mi	1.20	$ 2,640				
0452	Armitage	None	--	--	--	None	--	--	--	New fence	2.00 mi	2.00	$ 4,400				
0454	Walker Cr.	None	--	--	--	None	--	--	--	New fence(R) Cattleguard(R)	1.00 mi 1 ea	1.00 0.02 1.02	$ 2,200 1,700 $ 3,900				
0460	Sun Ranch	None	--	--	--	None	--	--	--	New fence	3.00 mi	3.00	$ 6,600				
0465 0467	Mill Creek-Gustin	None	--	--	--	None	--	--	--	New fence	1.20 mi	1.20	$ 2,640				
0477	Elser	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160				
0494	Riverlodge	None	--	--	--	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200				
0529	McAtee Bridge	None	--	--	--	None	--	--	--	New fence	2.30 mi	2.30	$ 5,060				
0677	Spring Brook	Alter fence	2.25 mi	--	$ 360	Alter fence	2.25 mi	--	$ 360	Alter fence	2.25 mi	--	$ 360				
0627	Shesser-Stoll Tract	None	--	--	--	None	--	--	--	New fence Fence removal	1.00 mi 1.20 mi	1.00 --	$ 2,200 480 $ 2,680				
0155	L Diamond	Alter fence	0.30 mi	--	$ 48	Alter fence	0.30 mi	--	$ 48	Alter fence	0.30 mi	--	$ 48				
0645	Horse Prairie-Bloody Dick	None	--	--	--	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200				
0661	Rochester Basin	None	--	--	--	None	--	--	--	New fence	3.50 mi	3.50	$ 7,700				

Jnlsd.	Sugarloaf	None	--	--	--	None	--	--	--	Fence removal New fence	0.25 mi 0.75 mi	-- 0.75	$ 100 1,650 $ 1,750			
0103	Hildreth	None	--	--	--	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200			
0112	Bjorni	Alter fence	2.00 mi	--	$ 320	Alter fence	2.00 mi	--	$ 320	Alter fence New fence	2.00 mi 1.00 mi	-- 1.00	$ 320 2,200 $ 2,520			
0127	Hildreth Livestock	None	--	--	--	None	--	--	--	New fence	0.50 mi	0.50	$ 1,100			
0141	Johnson Brothers	None	--	--	--	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200			
0142	Hirschey	Alter fence	0.25	--	$ 40	Alter fence	0.25 mi	--	$ 40	Alter fence	0.25 mi	--	$ 40			
0153	Matador SGC	None	--	--	--	None	--	--	--	New fence	2.00 mi	2.00	$ 4,400			
0176	E. Munday	None	--	--	--	None	--	--	--	New fence	0.75 mi	0.75	$ 1,650			
0196	Rutledge-Doolittle	None	--	--	--	None	--	--	--	New fence	0.50 mi	0.50	$ 1,100			
0540	Aspen Creek	None	--	--	--	None	--	--	--	New fence	1.25 mi	1.25	$ 2,750			
0601	Garden	None	--	--	--	None	--	--	--	New fence	2.75 mi	2.75	$ 6,050			
0611	Meadow Creek	None	--	--	--	None	--	--	--	New fence Fence removal	0.75 mi 0.25 mi	0.75 --	$ 1,650 100 $ 1,750			
0612	Four Eyes	None	--	--	--	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200			
0615	Buhler	Alter fence	1.20 mi	--	$ 192	Alter fence	1.20 mi	--	$ 192	Alter fence	1.20 mi	--	$ 192			
0616	Willy	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80			
0642	Truax Creek	None	--	--	--	None	--	--	--	New fence Fence removal	1.50 mi 1.25 mi	1.50 --	$ 3,300 500 $ 3,800			
0670	Sodak Mine	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240			
0707	Stibal	None	--	--	--	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300			
0731	G. W. Jones	None	--	--	--	None	--	--	--	New fence	1.25 mi	1.25	$ 2,750			
0654	Donovan	Alter fence	0.20 mi	--	$ 32	Alter fence	0.20 mi	--	$ 32	Alter fence	0.20 mi	--	$ 32			
0679	Sand Coulee	None	--	--	--	None	--	--	--	New fence	1.25 mi	1.25	$ 2,750			
0651	Chaffin	Alter fence	2.70 mi	--	$ 432	Alter fence	2.70 mi	--	$ 432	Alter fence	2.70 mi	--	$ 432			
0503	Wigwam Cr.	None	--	--	--	None	--	--	--	New fence	2.20 mi	2.20	$ 4,840			
0646	Horse Prairie-Station Cr.	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80			
0743	Big Hole Grazing Association	None	--	--	--	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300			

*(R) indicates that this development was recommended by the recreation specialist.

Developments shown are those proposed in addition to those listed in Alternative A.

		Fiscal Year 1981 (Unless otherwise noted, the year of survey and design would be 1980, and construction would be done in 1981.)															
		Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
Allotment No.	Allotment Name	Development	Units	Acres Disturbed	Estimated Development Costs	Development	Units	Acres Disturbed	Estimated Development Costs	Development*	Units	Acres Disturbed	Estimated Development Costs	Development#	Units	Acres Disturbed	Estimated Development Costs
0105	Anderson	None	--	--	--	None	--	--	--	New fence (R) Cattleguard (R)	0.20 mi 1 ea	0.20 0.02 0.22	$ 440 1,700 $ 2,140				
0603	Kingfisher	None	--	--	--	None	--	--	--	New fence (R) Cattleguard (R)	0.20 mi 1 ea	0.20 0.02 0.22	$ 440 1,700 $ 2,140				
0733	Holton Bros.	Alter fence	0.30 mi	--	$ 48	Alter fence	0.30 mi	--	$ 48	Alter fence	0.30 mi	--	$ 48				
Unlsd.	Sourdough	Alter fence	2.00 mi	--	$ 320	Alter fence	2.00 mi	--	$ 320	Alter fence	2.00 mi	--	$ 320				
0648	Sand Dunes	Alter fence	2.10 mi	--	$ 336	Alter fence	2.10 mi	--	$ 336	Alter fence	2.10 mi	--	$ 336				
0157	Long Creek	Alter fence	1.60 mi	--	$ 256	Alter fence	1.60 mi	--	$ 256	Alter fence	1.60 mi	--	$ 256				
		Alternative A Totals for Fiscal Year 1981				Alternative B Totals for Fiscal Year 1981				Alternative C Totals for Fiscal Year 1981				Alternative D Totals for Fiscal Year 1981			
		Fence alteration			157.88 miles	Fence alteration			157.88 miles	New fence			89.80 miles	Sagebrush burning			3,686.00 acres
		Total cost			$25,260.80	Total cost			$25,260.80	Fence removal			13.25 miles	Sagebrush spraying			11,559.00 acres
										Fence alteration			157.88 miles	Plowing and seeding			9,199.00 acres
										Cattleguards			6 each	Fence alteration			157.88 miles
										Plowing and seeding			1,340.00 acres	Total acreage disturbed			24,444.00 acres
										Sagebrush spraying			800.00 acres	Total cost			$518,266.80
										Total acreage disturbed			2,229.92 acres				
										Total cost			$296,420.80				
		Fiscal Year 1982 (Unless otherwise noted, the year of survey and design would be 1981, and construction would be done in 1982.)															
Revised AMPs with Adjustments																	
0002/ 0003	Clark Canyon	Alter fence	21.40 mi	--	$ 3,424	Alter fence	21.40 mi	--	$ 3,424	Alter fence New fence	21.40 mi 1.00 mi	-- 1.00	$ 3,424 2,200 $ 5,624				
Revised AMPs with Adjustments and Developments																	
0038	Buck Creek	New fence Alter fence	5.00 mi 8.40 mi	5.00 --	$ 11,000 1,344 $ 12,344	New fence Alter fence	5.00 mi 8.40 mi	5.00 --	$ 11,000 1,344 $ 12,344	New fence Alter fence	5.00 mi 8.40 mi	5.00 --	$ 11,000 1,344 $ 12,344				
Proposed AMPs with Adjustments and Developments																	
0123	Huntsman	Wells Pipelines	1 ea 1.00 mi	0.02 0.12 0.14	$ 8,000 1,200 $ 9,200	None	--	--	--	None	--	--	--				

0129	Big Spring Gulch	New fence Alter fence	0.40 mi 6.50 mi	0.40 --	$ 880 1,040 $ 1,920	Alter fence	6.50 mi	--	$ 1,040	New fence Alter fence	0.40 mi 6.50 mi	0.40 --	$ 880 $ 1,040 $ 1,920				
0137	Bull-Heifer Creek	Sagebrush burn	110.00 ac	110	$ 275	None	--	--	--	Sagebrush burn	110.00 ac	110	$ 275	Sagebrush burn	90.00 ac	90	$ 225
0143	Mayberry	New fence Wells Pipelines Alter fence	6.00 mi 1 ea 3.00 mi 13.25 mi	6.00 0.02 0.36 -- 6.38	$ 13,200 8,000 3,600 3,720 $ 28,520	Alter fence	13.25 mi	--	$ 3,720	New fence Wells Pipelines Alter fence	6.00 mi 1 ea 3.00 mi 13.25 mi	6.00 0.02 0.36 -- 6.38	$ 13,200 8,000 3,600 3,720 $ 28,520				
0172	Ruby Dell	New fence	2.50 mi	2.50	$ 5,500	None	--	--	--	New fence	2.50 mi	2.50	$ 5,500	Sagebrush spray	1,600 ac	--	$ 22,400
0179	Peet Rock	New fence	0.50 mi	0.50	$ 1,100	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200	Sagebrush spray	570 ac	--	$ 7,980
0199	Rody	New fence	2.50 mi	2.50	$ 5,500	None	--	--	--	New fence	2.50 mi	2.50	$ 5,500				
0522	Wall Creek	New fence Cattleguard Wells Pipelines Stock tanks	4.00 mi 2 ea 1 ea 1.00 mi 2 ea	4.00 0.04 0.02 0.12 0.20 4.38	$ 8,800 3,400 8,000 1,200 900 $ 22,300	None	--	--	--	New fence Cattleguard Wells Pipelines Stock tanks Fence removal (R) Cattleguard(R)	4.00 mi 2 ea 1 ea 1.00 mi 2 ea 0.25 mi 1 ea	4.00 0.04 0.02 0.12 0.20 -- .02 4.40	$ 8,800 3,400 8,000 1,200 900 100 1,700 $ 24,100				
0703	Wolfe	New fence	1.00 mi	1.00	$ 2,200	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200				
0708	Fish Creek	New fence Wells Pipelines Stock tanks	7.00 mi 1 ea 2.00 mi 3 ea	7.00 0.02 0.24 0.30 7.56	$ 15,400 8,000 2,400 1,350 $ 27,150	None	--	--	--	New fence Wells Pipelines Stock tanks	9.20 mi 1 ea 2.00 mi 3 ea	9.20 0.02 0.24 0.30 9.76	$ 20,240 8,000 2,400 1,350 $ 31,990				
0727	Roe Ranch	New fence	3.00 mi	3.00	$ 6,600	None	--	--	--	New fence	3.00 mi	3.00	$ 6,600	Pipeline	3.00 mi	0.36	$ 3,600
0730	Jones-Peet	New fence	4.75 mi	4.75	$ 10,450	None	--	--	--	New fence	6.75 mi	6.75	$ 14,850	Sagebrush burn	883.00 ac	883	$ 2,207.50
0732	Sand Dunes	New fence Alter fence	1.00 mi 1.60 mi	1.00 --	$ 2,200 256 $ 2,456	Alter fence	1.60 mi	--	$ 256	New fence Alter fence	1.00 mi 1.60 mi	1.00 --	$ 2,200 256 $ 2,456				
0738	Cocanougher	New fence	1.50 mi	1.50	$ 3,300	None	--	--	--	New fence	2.10 mi	2.10	$ 4,620				
0740	East Clover Creek	New fence Cattleguard	4.50 mi 1 ea	4.50 .02 4.52	$ 9,900 1,700 $ 11,600	None	--	--	--	New fence	4.50 mi	4.50	$ 9,900	Sagebrush spray	2,692 ac	2,692	$ 37,688
0377	Sparrow Ditch	New fence Alter fence	0.50 mi 0.80 mi	0.50 --	$ 1,100 128 $ 1,228	Alter fence	0.80 mi	--	$ 128	New fence Alter fence	0.50 mi 0.80 mi	0.50 --	$ 1,100 128 $ 1,228				
0407	Revenue Common	New fence Springs Pipeline Stock tanks	0.50 mi 2 ea 1.03 mi 4 ea	0.50 .40 .13 .40 1.43	$ 1,100 3,600 1,236 1,800 $ 7,736	None	--	--	--	New fence Springs Pipeline Stock tanks	0.50 mi 2 ea 1.03 mi 4 ea	0.50 .40 .13 .40 1.43	$ 1,100 3,600 1,236 1,800 $ 7,736				
0421	Strawberry Ridge	New fence Pipelines Stock tanks	6.00 mi 0.25 mi 3 ea	6.00 0.03 0.30 6.33	$ 13,200 300 1,350 $ 14,850	None	--	--	--	New fence Pipelines Stock tanks	6.00 mi 0.25 mi 3 ea	6.00 0.03 0.30 6.33	$ 13,200 300 1,350 $ 14,850				

*(R) indicates that this development was recommended by the recreation specialist.

Developments shown are those proposed in addition to those listed in Alternative A.

		Fiscal Year 1982 (Unless otherwise noted, the year of survey and design would be 1981, and construction would be done in 1982.)															
		Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Enhanced Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
Allot-ment No.	Allotment Name	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development*	Units	Acres Dis-turbed	Estimated Development Costs	Development#	Units	Acres Dis-turbed	Estimated Development Costs
0428	Fletcher-Moore	New fence	7.00 mi	7.00	$ 15,400					New fence	7.00 mi	7.00	$ 15,400				
		Wells	2 ea	0.04	16,000					Wells	2 ea	0.04	16,000				
		Springs	1 ea	0.20	1,800					Springs	1 ea	0.20	1,800				
		Pipeline	1.25 mi	0.15	1,500					Pipeline	1.25 mi	0.15	1,500				
		Stock tanks	5 ea	0.50	2,250					Stock tanks	5 ea	0.50	2,250				
		Alter fence	0.80 mi	--	128	Alter fence	0.80 mi	--	$ 128	Alter fence	0.80 mi	--	128				
				7.89	$ 37,078							7.89	$ 37,078				
0433	Shaw Basin	New fence	1.00 mi	1.00	$ 2,200	None	--	--	--	Fence removal	1.00 mi	--	$ 400				
										New fence	1.00 mi	1.00	2,200				
													2,600				
0447	Wallace Peak	New fence	1.25 mi	1.25	$ 2,750	None	--	--	--	New fence	1.25 mi	1.25	$ 2,750				
		Springs	1 ea	0.20	1,800					Springs	1 ea	0.20	1,800				
		Pipeline	0.50 mi	0.06	600					Pipeline	0.50 mi	0.06	600				
		Stock tanks	3 ea	0.30	1,350					Stock tanks	3 ea	0.30	1,350				
		Sagebrush burn	116 ac	116.00	290					Sagebrush burn	116 ac	116.00	290				
				117.81	$ 6,790							117.81	$ 6,790				
		Alternative A Totals for Fiscal Year 1982				Alternative B Totals for Fiscal Year 1982				Alternative C Totals for Fiscal Year 1982				Alternative D Totals for Fiscal Year 1982			
		New fence	59.90 miles			New fence	5.00 miles			New fence	66.20 miles			New fence	59.90 miles		
		Cattleguards	3 each			Fence alteration	52.75 miles			Cattleguards	4 each			Cattleguards	3 each		
		Springs	4 each							Springs	4 each			Springs	4 each		
		Pipeline	10.03 miles			Total acreage disturbed	5.00 acres			Pipelines	10.03 miles			Pipelines	13.03 miles		
		Stock tanks	20 each			Total cost	$19,440			Stock tanks	20 each			Stock tanks	20 each		
		Fence alteration	52.75 miles							Fence alteration	52.75 miles			Fence alteration	52.75 miles		
		Sagebrush burning	226.00 acres							Sagebrush burning	110.00 acres			Sagebrush burning	1,199.00 acres		
		Plowing and seeding	831.00 acres							Fence removal	1.25 miles			Plowing and seeding	831.00 acres		
		Wells	6 each							Wells	6 each			Wells	6 each		
														Sagebrush spraying	4,682.00 acres		
		Total acreage disturbed	290.09 acres							Total acreage disturbed	176.28 acres			Total acreage disturbed	5,835.36 acres		
		Total cost	$251,206							Total cost	$237,891.00			Total cost	$325,306.50		
		Fiscal Year 1983 (Unless otherwise noted, the year of survey and design would be 1982, and construction would be done in 1983.)															
Revised AMPs with Adjustments and Developments																	
0020	North Black Canyon	New fence	0.75 mi	0.75	$ 1,650	New fence	0.75 mi	0.75	$ 1,650	New fence	0.75 mi	0.75	$ 1,650				
0025	Trail Creek	New fence	1.30 mi	1.30	$ 2,860	New fence	1.30 mi	1.30	$ 2,860	Interseeding	350 ac	350.00	$ 12,250	Sagebrush spray	360 ac	360	$ 5,040
										New fence	1.30 mi	1.30	2,860	Plow,seed	353 ac	353	12,355
												351.30	$ 15,110			713	$ 17,395
0026	Anderson Field	New fence	1.50 mi	1.50	$ 3,300	New fence	1.50 mi	1.50	$ 3,300	New fence	1.50 mi	1.50	$ 3,300				

0028	Scudder Creek	Pipeline	0.75 mi	0.09	$ 900	Pipeline	0.75 mi	0.09	$ 900	Pipeline	0.75 mi	0.09	$ 900				
		Stock tanks	2 ea	0.20	900	Stock tanks	2 ea	0.20	900	Stock tanks	2 ea	0.20	900				
		Alter fence	1.00 mi	--	160	Alter fence	1.00 mi	--	160	Alter fence	1.00 mi	--	160				
				0.29	$ 1,960			0.20	$ 1,960			0.29	$ 1,960				
0030	Reservoir Creek	New fence	1.50 mi	1.50	$ 3,300	New fence	1.50 mi	1.50	$ 3,300	New fence	1.50 mi	1.50	$ 3,300				
0031	PHW	Wells	1 ea	0.02	$ 8,000	Wells	1 ea	0.02	$ 8,000	Wells	1 ea	0.02	$ 8,000				
		New fence	4.00 mi	4.00	8,800	New fence	4.00 mi	4.00	8,800	New fence	4.00 mi	4.00	8,800				
										Chisel/inter-seed	200 ac	--	7,000				
										Sagebrush spray	900 ac	900.00	12,600	Sagebrush spray	3,600 ac	3,600	$ 50,400
		Alter fence	2.00 mi	--	320	Alter fence	2.00 mi	--	320	Alter fence	2.00 mi	--	320	Plow, seed	3,600 ac	--	126,000
				4.02	$ 17,120			4.02	$ 17,120			904.02	$ 37,040				$ 176,400
0034	Red Mine	New fence	0.50 mi	0.50	$ 1,100	New fence	0.50 mi	0.50	$ 1,100	New fence	0.50 mi	0.50	$ 1,100				
		Cattleguard	1 ea	0.20	1,700	Cattleguard	1 ea	0.20	1,700	Cattleguard	1 ea	0.20	1,700				
		Pipeline	0.50 mi	0.06	600	Pipeline	0.50 mi	0.06	600	Pipeline	0.50 mi	0.06	600				
		Stock tanks	1 ea	0.10	450	Stock tanks	1 ea	0.10	450	Stock tanks	1 ea	0.10	450				
				0.86	$ 3,850			0.86	$ 3,850			0.86	$ 3,850				
0035	Brenner Seeding									Plow, seed (chisel)	160 ac	160.00	$ 5,600				
		New fence	2.00 mi	2.00	$ 4,400	New fence	2.00 mi	2.00	$ 4,400	New fence	2.00 mi	2.00	4,400				
												162.00	$ 10,000				
Proposed AMPs with Adjustments and Developments																	
0101	Little Divide	New fence	4.00 mi	4.00	$ 8,800	None	--	--	--	New fence	4.00 mi	4.00	$ 8,800				
0102	Cabin Creek	New fence	1.00 mi	1.00	$ 2,200	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200				
		Pipeline	0.25 mi	0.03	300					Pipeline	0.25 mi	0.03	300				
		Stock tanks	1 ea	0.10	450					Stock tanks	1 ea	0.10	450				
				1.13	$ 2,950							1.13	$ 2,950				
0104	Twin Lakes	Sagebrush burn	300 ac	300.00	$ 750	None	--	--	--	Sagebrush burn	300 ac	300.00	$ 750	Sagebrush burn	87.00 ac	87.00	$ 217.50
		Cattleguards	1 ea	0.02	1,700					Cattleguards	1 ea	0.02	1,700				
				300.02	$ 2,450							300.02	$ 2,450				
0108	Hansen Creek	New fence	6.40 mi	6.40	$ 14,080	None	--	--	--	New fence	6.40 mi	6.40	$ 14,080				
		Stock tanks	4 ea	0.40	1,800					Stock tanks	4 ea	0.40	1,800				
				6.80	$ 15,880							6.80	$ 15,880				
0110	Pipe Organ Rock	Wells	1 ea	0.02	$ 8,000	None	--	--	--	Wells	1 ea	0.02	$ 8,000				
		Stock tanks	1 ea	0.10	450					Stock tanks	1 ea	0.10	450				
				0.12	$ 8,450							0.12	$ 8,450				
0118	Antelope Butte	New fence	0.70 mi	0.70	$ 1,540	None	--	--	--	New fence	0.70 mi	0.70	$ 1,540				
		Well	1 ea	0.02	8,000					Well	1 ea	0.02	8,000				
		Stock tanks	3 ea	0.30	1,350					Stock tanks	3 ea	0.30	1,350				
				1.02	$ 10,890							1.02	$ 10,890				
0119	Pass Creek	New fence	2.00 mi	2.00	$ 4,400	None	--	--	--	New fence	2.00 mi	2.00	$ 4,400				
0120	Frenchie-Carroll-Holland	New fence	6.00 mi	6.00	$ 13,200					New fence	6.00 mi	6.00	$ 13,200				
		Wells	4 ea	0.08	32,000					Wells	4 ea	0.08	32,000				
		Alter fence	5.00 mi	--	800	Alter fence	5.00 mi	--	$ 800	Alter fence	5.00 mi	--	800				
				6.08	$ 46,000							6.08	$ 46,000				
0124	Cedar Creek	Sagebrush burn	700 ac	700.00	$ 1,750	None	--	--	--	Sagebrush burn	400 ac	400.00	$ 1,000	Sagebrush burn	800.00 ac	800.00	$ 2,000
		Wells	1 ea	0.02	8,000					Wells	1 ea	0.02	8,000				
		Pipeline	3.70 mi	0.45	4,440					Pipeline	3.70 mi	0.45	4,440				
		Stock tanks	6 ea	0.60	2,700					Stock tanks	6 ea	0.60	2,700				
				701.07	$ 16,890							401.07	$ 16,140				

*(R) indicates that this development was recommended by the recreation specialist.

Developments shown are those proposed in addition to those listed in Alternative A.

Fiscal Year 1983
(Unless otherwise noted, the year of survey and design would be 1982, and construction would be done in 1983.)

Allot-ment No.	Allotment Name	Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
		Development	Units	Acres Dis-turbed	Estimated Development Costs	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development*	Units	Acres Dis-turbed	Estimated Development Costs	Development#	Units	Acres Dis-turbed	Estimated Development Costs
0126	Ellis Peak	Alter fence	2.50 mi	--	$ 400	Alter fence	2.50 mi	--	$ 400	Alter fence	2.50 mi	--	$ 400				
		New fence	5.00 mi	5.00	11,000					New fence	5.00 mi	5.00	11,000				
		Wells	2 ea	0.04	16,000					Wells	2 ea	0.04	16,000				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				5.24	$ 28,300							5.24	$ 28,300				
0130	South Black Canyon	New fence	2.50 mi	2.50	$ 5,500					New fence	2.50 mi	2.50	$ 5,500				
		Stock tanks	1 ea	0.10	450					Stock tanks	1 ea	0.10	450				
		Alter fence	1.80 mi	--	288	Alter fence	1.80 mi	--	$ 288	Alter fence	1.80 mi	--	$ 288				
				2.60	$ 6,328							2.60	$ 6.328				
0131	Frying Pan	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240	Alter fence	1.50 mi	--	$ 240				
		Plow, seed	400.00 ac	400.00	14,000					New fence	5.50 mi	5.50	12,100				
		New fence	5.50 mi	5.50	12,100					Wells	2 ea	0.04	16,000				
		Wells	2 ea	0.04	16,000					Springs	10 ea	2.00	18,000				
		Springs	10 ea	2.00	18,000					Pipelines	3.25 mi	0.40	3,900				
		Pipelines	3.25 mi	0.40	3,900					Stock tanks	10 ea	1.00	$ 4,500				
		Stock tanks	10 ea	1.00	$ 4,500							8.94	$ 54,740				
				408.94	$ 68,740												
0135	Big Hole Road	New fence	2.75 mi	2.75	$ 6,050	None	--	--	--	New fence	2.75 mi	2.75	$ 6,050				
		Wells	1 ea	0.02	8,000					Wells	1 ea	0.02	8,000				
		Pipeline	3.00 mi	0.36	3,600					Pipeline	3.00 mi	0.36	3,600				
		Stock tanks	6 ea	0.60	2,700					Stock tanks	6 ea	0.60	2,700				
				3.73	$ 20,350							3.73	$ 20,350				
0148	Rocky Hills	Sagebrush burn	530.00 ac	530.00	$ 1,325	None	--	--	--	Cattleguards	5 ea	1.00	$ 8,500	Sagebrush burn	7,770 ac	7,770	$ 19,425
		Cattleguards	5 ea	1.00	8,500					Wells	5 ea	0.12	48,000				
		Wells	5 ea	0.12	48,000					Springs	1 ea	0.20	1,800				
		Springs	1 ea	0.20	1,800					Pipelines	7.50 mi	0.90	9,000				
		Pipelines	7.50 mi	0.90	9,000					Stock tanks	15 ea	0.15	6,750				
		Stock tanks	15 ea	0.15	6,750							2.37	$ 74,050				
				532.37	$ 75,375												
0150	Radio-TV Tower	Cattleguard	1 ea	0.02	$ 1,700.00					Cattleguard	1 ea	0.02	$ 1,700.00				
		Alter fence	3.13 mi	--	500.80	Alter fence	3.13 mi	--	$ 500.80	Alter fence	3.13 mi	--	$ 500.80				
					$ 2,200.80							0.02	$ 2,200.80				
0160	Burns Mtn.	Stock tanks	2 ea	0.20	$ 900	None	--	--	--	Stock tanks	2 ea	0.20	$ 900				
0161	Buzztail	New fence	0.25 mi	0.25	$ 550	None	--	--	--	New fence	0.25 mi	0.25	$ 550				
		Stock tanks	1 ea	0.10	450					Stock tanks	1 ea	0.10	450				
				0.35	$ 1,000							0.35	$ 1,000				
0171	Henneberry Ridge	Well	1 ea	0.02	$ 8,000	None	--	--	--	Well	1 ea	0.02	$ 8,000				
		Stock tank	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				0.22	$ 8,900							0.22	$ 8,900				

0182	Kennison Spring	Alter fence	1.25 mi	--	$ 200	Alter fence	1.25 mi	--	$ 200	Alter fence	1.25 mi	--	$ 200	Sagebrush spray	360.00 ac	360.00	5.040
		New fence	1.00 mi	1.00	2,200					New fence	1.00 mi	1.00	2,200				
		Spring	2 ea	0.40	3,600					Spring	2 ea	0.40	3,600				
		Pipeline	1.50 mi	0.18	1,800					Pipeline	1.50 mi	0.18	1,800				
				1.58	$ 7,800							1.58	$ 7,800				
0192	Shoshone Cove	Pipeline	2.00 mi	2.00	$ 2,400	None	--	--	--	Pipeline	2.00 mi	2.00	$ 2,400	Sagebrush spray	220.00 ac	220.00	$ 3,080
0193	William Bell Canyon	New fence	6.00 mi	6.00	$ 13,200	None	--	--	--	New fence	6.00 mi	6.00	$ 13,200				
		Pipeline	3.50 mi	0.42	4,200					Pipeline	3.50 mi	0.42	4,200				
		Stock tanks	3 ea	0.30	1,350					Stock tanks	3 ea	0.30	1,350				
				6.72	$ 18,750							6.72	$ 18,750				
0197	Bell Ranch	Springs	3 ea	0.60	$ 5,400					Springs	3 ea	0.60	$ 5,400				
		Stock tanks	6 ea	0.60	2,700					Stock tanks	6 ea	0.60	2,700				
		Alter fence	6.25 ac	--	1,000	Alter fence	6.25 mi	--	$ 1,000	Alter fence	6.25 mi	--	1,000	Alter fence	6.25 mi	--	$ 1,000
				1.20	$ 9,100							1.20	$ 9,100				
0269	Four Eyes	New fence	1.00 mi	1.00	$ 2,200	None	--	--	--	New fence	1.00 mi	1.00	$ 2,200				
		Wells	1 ea	0.02	8,000					Wells	1 ea	0.02	8,000				
		Springs	1 ea	0.20	1,800					Springs	1 ea	0.20	1,800				
		Stock tank	1 ea	0.10	450					Stock tank	1 ea	0.10	450				
				1.32	$ 12,450							1.32	$ 12,450				
0699	Nicholia	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640				
		New fence	2.80 mi	2.80	6,160					New fence	2.80 mi	2.80	6,160				
		Cattleguard	1 ea	0.02	1,700					Cattleguard	1 ea	0.02	1,700				
		Springs	5 ea	1.00	9,000					Springs	5 ea	1.00	9,000				
		Pipeline	5.00 mi	0.60	6,000					Pipeline	5.00 mi	0.60	6,000				
		Stock tanks	8 ea	0.80	3,600					Stock tanks	8 ea	0.80	3,600				
				5.22	$ 27,100							5.22	$ 27,100				
0725	Horse Prairie Livestock	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80	Sagebrush spray	400.00 ac	400.00	5,600
		New fence	0.50 mi	0.50	1,100					New fence	0.50 mi	0.50	1,100				
		Cattleguard	1 ea	0.02	1,700					Cattleguard	1 ea	0.02	1,700				
		Springs	3 ea	0.60	5,400					Springs	3 ea	0.60	5,400				
				1.12	$ 8,280							1.12	$ 8,280				
0741	Indian Creek	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160	Sagebrush burn	620.00 ac	620.00	1.550
		New fence	2.00 mi	2.00	4,400					New fence	2.00 mi	2.00	4,400				
					$ 4,560								$ 4,560				
0745	Taylor Cr.	New fence	3.50 mi	3.50	$ 7,700	None	--	--	--	New fence	3.50 mi	3.50	$ 7,700	Sagebrush spray	1,000 ac	1,000	$ 14,000
0748	Briggs-Medicine Lodge	New fence	1.50 mi	1.50	$ 3,300	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300	Sagebrush burn	580 ac	580	$ 1,450
0753	Bannock Pass	Springs	1 ea	0.20	$ 1,800	None	--	--	--	Springs	1 ea	0.20	$ 1,800				

Alternative A Totals for Fiscal Year 1983	
New fence	65.95 miles
Cattleguards	10 each
Fence alteration	29.93 miles
Sagebrush burning	1,530.00 acres
Plowing and seeding	400.00 acres
Pipeline	30.95 miles
Stock tanks	75 each
Wells	21 each
Springs	26 each
Total acreage disturbed	2,345.49 acres
Total cost	$470,393.80

Alternative B Totals for Fiscal Year 1983	
New fence	11.55 miles
Cattleguards	1 each
Fence alteration	29.93 miles
Pipeline	1.25 miles
Stock tanks	3 each
Wells	1 each
Total acreage disturbed	843.22 acres
Total cost	$42,748.80

Alternative C Totals for Fiscal Year 1983	
New fence	65.95 miles
Cattleguards	10 each
Fence alteration	29.93 miles
Sagebrush burning	400.00 acres
Sagebrush spraying	900.00 acres
Chiseling/interseeding	710.00 acres
Pipeline	30.95 miles
Stock tanks	75 each
Wells	21 each
Springs	26 each
Total acreage disturbed	1,892.97 acres
Total cost	$491,018.80

Alternative D Totals for Fiscal Year 1983	
New fence	65.95 miles
Cattleguards	10 each
Fence alteration	29.93 miles
Sagebrush burning	11,387.00 acres
Sagebrush spraying	5,940.00 acres
Plowing and seeding	4,353.00 acres
Pipeline	30.95 miles
Stock tanks	75 each
Wells	21 each
Springs	26 each
Total acreage disturbed	16,750.00 acres
Total cost	$716,551.30

*(R) indicates that this development was recommended by the recreation specialist.

Developments shown are those proposed in addition to those listed in Alternative A.

Fiscal Year 1984
(Unless otherwise noted, the year of survey and design would be 1983, and construction would be done in 1984.)

Allotment No.	Allotment Name	Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
		Development	Units	Acres Disturbed	Estimated Development Costs	Development	Units	Acres Disturbed	Estimated Development Costs	Development*	Units	Acres Disturbed	Estimated Development Costs	Development#	Units	Acres Disturbed	Estimated Development Costs
Revised AMPs with Adjustments and Developments																	
0308 0309	Camp Creek	Cattleguard**	1 ea	0.02	$ 1,700	Cattleguard	1 ea	0.02	$ 1,700	Cattleguard	1 ea	0.02	$ 1,700				
		Wells	2 ea	0.04	16,000	Wells	2 ea	0.04	16,000	Wells	2 ea	0.04	16,000				
		Pipeline***	12.00 mi	1.44	14,400	Pipeline	12.00 mi	1.44	14,400	Pipeline	12.00 mi	1.44	14,400				
		Stock tanks	12 ea	1.20	5,400	Stock tanks	12 ea	1.20	5,400	Stock tanks	12 ea	1.20	5,400				
				2.70	$ 37,500			2.70	$ 37,500			2.70	$ 37,500				
0335	Lelow Basin	Sagebrush burn	660 ac	660	$ 1,650	Sagebrush burn	660 ac	660	$ 1,650	None	--	--	--				
0471	Sweetwater	Springs	3 ea	0.60	$ 5,400.00	Springs	3 ea	0.60	$5,400.00	Springs	3 ea	0.60	$ 5,400.00				
		Stock tanks	6 ea	0.60	2,700.00	Stock tanks	6 ea	0.60	2,700.00	Stock tanks	6 ea	0.60	2,700.00				
		Alter fence	1.74 mi	--	278.40	Alter fence	1.74 mi	--	278.40	Alter fence	1.74 mi	--	278.40				
				1.20	$ 8,378.40			1.20	$8,378.40			1.20	$ 8,378.40				
Proposed AMPs with Adjustments and Developments																	
0236	Dry Boulder	Sagebrush burn	52.00 ac	52.00	$ 130	None	--	--	--								
		Cattleguards	1 ea	0.02	1,700					Cattleguards	1 ea	0.02	$ 1,700				
		New fence	1.00 mi	1.00	2,200					New fence	1.00 mi	1.00	2,200				
				53.02	$ 4,030							53.02	$ 3,900				
0302	Bradley	Sagebrush spray	300 ac	300	$ 4,200	None	--	--	--	None	--	--	--	Sagebrush spray	450.00 ac	450.00	$ 6,300
0305	Burk-Rieber	Cattleguards	1 ea	0.02	$ 1,700	None	--	--	--	Cattleguards	1 ea	0.02	$ 1,700	Sagebrush spray	1,000.00 ac	1,000.00	$ 14,000
		Springs	1 ea	0.20	1,800					Springs	1 ea	0.20	1,800				
		Pipeline	0.50 mi	0.06	600					Pipeline	0.50 mi	0.06	600				
		Stock tanks	1 ea	0.10	450					Stock tanks	1 ea	0.10	450				
				0.38	$ 4,550							0.38	$ 4,550				
0311	Glendale Common	New fence	2.00 mi	2.00	$ 4,400	None	--	--	--	New fence(R)	0.75 mi	0.75	$ 1,650				
		Cattleguards	2 ea	0.04	3,400					New fence	2.00 mi	2.00	4,400				
		Pipeline	1.25 mi	0.15	1,500					Cattleguards	2 ea	0.04	3,400				
		Stock tanks	5 ea	0.50	2,250					Pipeline	1.25 mi	0.15	1,500				
		Sagebrush burn	1,200 ac	1200	$ 3,000					Stock tanks	5 ea	0.50	2,250				
				1202.69	$ 14,550							3.44	$ 13,200				
0312	Maiden Rock	New fence	0.25 mi	0.25	$ 550	None	--	--	--	New fence	0.25 mi	0.25	$ 550				
0314	Garrison	New fence	3.50 mi	3.50	$ 7,700	None	--	--	--	New fence	3.50 mi	3.50	$ 7,700	Sagebrush burn	1,710.00 ac	1,710.00	$ 4,275
		Cattleguards	1 ea	0.02	1,700					Cattleguards	1 ea	0.02	1,700				
				3.52	$ 9,400							3.52	$ 9,400				

0319	Gneiting	Alter fence	2.50 mi	--	$ 400	Alter fence	2.50 mi	--	$ 400	Alter fence	2.50 mi	--	$ 400				
		New fence	2.00 mi	2.00	4,400					New fence	2.00 mi	2.00	4,400				
		Spring	1 ea	0.20	1,800					Spring	1 ea	0.20	1,800				
		Pipeline	1.75 mi	0.21	2,100					Pipeline	1.75 mi	0.21	2,100				
		Stock tanks	4 ea	0.40	1,800					Stock tanks	4 ea	0.40	1,800				
				2.81	$ 10,500							2.81	$ 10,500				
0320	Browns Cherry Cr.	Cattleguards	2 ea	0.04	$ 3,400	None	--	--	--	Cattleguards	2 ea	0.04	$ 3,400	Sagebrush spray	3,300 ac	3,300	$ 46,200
		Spring	1 ea	0.20	1,800					Sagebrush spray	1,200 ac	1,200	$ 16,800				
		Pipeline	0.06 mi	0.01	72					Spring	1 ea	0.20	1,800				
		Stock tank	1 ea	0.10	450					Pipeline	0.06 mi	0.01	72				
										Stock tank	1 ea	0.10	450				
				0.35	$ 5,722							1200.35	$ 22,522				
0323	McCartney Mountain	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160				
		New fence	7.00 mi	7.00	15,400					New fence	7.00 mi	7.00	15,400				
		Pipeline	1.00 mi	0.12	1,200					Pipeline	1.00 mi	0.12	1,200				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				7.32	$ 17,660							7.32	$ 17,660				
0326	Tungsten Mill	Alter fence	3.50 mi	--	$ 560	Alter fence	3.50 mi	--	$ 560	Alter fence	3.50 mi	--	$ 560				
		New fence	2.25 mi	2.25	4,950					New fence	2.25 mi	2.25	4,950				
		Springs	1 ea	0.20	1,800					Springs	1 ea	0.20	1,800				
		Pipeline	0.50 mi	0.06	600					Pipeline	0.50 mi	0.06	600				
		Stock tank	1 ea	0.10	450					Stock tanks	1 ea	0.10	450				
				2.61	$ 8,360							2.61	$ 8,360				
0327	Devil's Dancehall	Pipeline	0.06 mi	0.01	$ 72	None	--	--	--	Interseed (Plow,seed)	100.00 ac	100.00	$ 3,500				
		Stock tank	1 ea	0.10	450					Pipeline	0.06 mi	0.01	72				
		Plow, seed	100.00 ac	100.00	3,500					Stock tank	1 ea	0.10	450				
				100.11	$ 4,022							100.11	$ 4,022				
0328	Birch Cr.-Willow Cr.	New fence	1.50 mi	1.50	$ 3,300	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300	Sagebrush spray	4,000 ac	4,000	$ 56,000
		Pipeline	1.00 mi	0.12	1,200					Pipeline	1.00 mi	0.12	1,200				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				1.82	$ 5,400							1.82	5,400				
0332	Skeeters	Pipeline	1.50 mi	0.18	$ 1,800	None	--	--	--	Pipeline	1.50 mi	0.18	$ 1,800				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				0.38	$ 2,700							0.38	$ 2,700				
0337	Seven Springs-Big Hole	New fence	1.50 mi	1.50	$ 3,300	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300	Sagebrush spray	2,500 ac	2,500	$ 35,000
0342	Limekiln	Sagebrush burn	150.00 ac	150.00	$ 375	None	--	--	--	None	--	--	--	Sagebrush burn	135.00 ac	135.00	$ 337.50
0343	Quartz Hill	New fence	0.25 mi	0.25	$ 550	None	--	--	--	New fence	0.25 mi	0.25	$ 550	Sagebrush burn	290.00 ac	290.00	$ 725
		Spring	1 ea	0.20	1,800					Spring	1 ea	0.20	1,800				
		Pipeline	0.25 mi	0.03	300					Pipeline	0.25 mi	0.03	300				
		Stock tank	1 ea	0.10	450					Stock tank	1 ea	0.10	450				
		Sagebrush burn	70.00 ac	70.00	175												
				70.58	$ 3,275							0.58	$ 3,100				
0345	Logan Smith	Spring	1 ea	0.20	$ 1,800	None	--	--	--	Spring	1 ea	0.20	$ 1,800	Sagebrush burn	67.00 ac	67.00	$ 167.50
		Stock tank	1 ea	0.10	450					Stock tank	1 ea	0.10	450				
		Sagebrush burn	50.00 ac	50.00	125												
				50.30	$ 2,375							0.30	$ 2,250				
0347	Twin Adams	Pipeline	0.50 mi	0.06	$ 600	None	--	--	--	Pipeline	0.50 mi	0.06	$ 600				
		Stock tank	1 ea	0.10	450					Stock tank	1 ea	0.10	450				
				0.16	$ 1,050							0.16	$ 1,050				

*(R) indicates that this development was recommended by the recreation specialist. **For Alternatives A and B, the survey and design of this cattleguard was completed in 1978, and its construction has been programmed for 1979. ***For Alternatives A and B, the survey and design of this development would be in 1979, and construction would be done in 1980.

#Developments shown are those proposed in addition to those listed in Alternative A.

Fiscal Year 1984

(Unless otherwise noted, the year of survey and design would be 1983, and construction would be done in 1984.)

Allotment No.	Allotment Name	Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
		Development	Units	Acres Dis-turbed	Estimated Development Costs	Development	Units	Acres Dis-turbed	Estimated Development Costs	Development*	Units	Acres Dis-turbed	Estimated Development Costs	Development#	Units	Acres Dis-turbed	Estimated Development Costs
0348	Georgia Gulch	New fence	4.00 mi	4.00	$ 8,800	None	--	--	--	New fence	4.00 mi	4.00	$ 8,800				
		Cattleguard	1 ea	0.02	1,700					Sagebrush burn	512.00 ac	512.00	$ 1,280	Sagebrush burn	512 ac	512	$ 1,280
		Spring	1 ea	0.20	1,800					Cattleguard	1 ea	0.02	1,700				
		Pipeline	0.04 mi	0.01	48					Spring	1 ea	0.20	1,800				
		Stock tank	1 ea	0.10	450					Pipeline	0.04 mi	0.01	48				
				4.33	$ 12,798					Stock tank	1 ea	0.10	450				
												516.33	$ 14,078				
0351	Alder Creek	New fence	2.00 mi	2.00	$ 4,400	None	--	--	--	New fence	2.00 mi	2.00	$ 4,400				
0354	Seyler Pasture	New fence	2.00 mi	2.00	$ 4,400.00	None	--	--	--	New fence	2.00 mi	2.00	$ 4,400.00	Sagebrush burn	105 ac	105	$ 262.50
		Pipeline	0.50 mi	0.06	600.00					Pipeline	0.50 mi	0.06	600.00				
		Stock tank	1 ea	0.10	450.00					Stock tanks	1 ea	0.10	450.00				
		Sagebrush burn	25.00 ac	25.00	62.50							2.16	$ 5,450.00				
				27.16	$ 5,512.50												
0443	Kountz	New fence	0.75 mi	0.75	$ 1,650	None	--	--	--	New fence	0.75 mi	0.75	$ 1,650	Sagebrush spray	438 ac	438	$ 6,132
		Pipeline	0.04 mi	0.01	48					Pipeline	0.04 mi	0.01	48				
		Stock tank	1 ea	0.10	450					Stock tank	1 ea	0.10	450				
				0.86	$ 2,148							0.86	$ 2,148				
0456	Ballard	New fence	4.00 mi	4.00	$ 8,800	None	--	--	--	New fence	4.00 mi	4.00	$ 8,800	Sagebrush burn	240 ac	240	$ 600
		Sagebrush burn	100.00 ac	100.00	$ 250												
				104.00	$ 9,050												
0468	Granite Creek	Spring	1 ea	0.20	$ 1,800	None	--	--	--	Spring	1 ea	0.20	$ 1,800	Sagebrush burn	544 ac	544	$ 1,360
		Pipeline	1.00 mi	0.12	1,200					Pipeline	1.00 mi	0.12	1,200				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				0.52	$ 3,900							0.52	$ 3,900				
0469	Belmont	Alter fence	3.00 mi	--	$ 480	Alter fence	3.00 mi	--	$ 480	Alter fence	3.00 mi	--	$ 480				
		New fence	1.25 mi	1.25	2,750					New fence	1.25 mi	1.25	2,750	Sagebrush burn	154 ac	154	385
		Pipeline	4.00 mi	0.48	4,800					Pipeline	4.00 mi	0.48	4,800	Sagebrush spray	311 ac	311	4,354
		Stock tanks	4 ea	0.40	1,800					Stock tanks	4 ea	0.40	1,800			465	$ 4,739
		Sagebrush burn	230.00 ac	230.00	575							2.13	$ 9,830				
		Sagebrush spray	1,500 ac	1,500	21,000												
				1,732.13	$ 31,405												
0479	Garden Creek	New fence	5.50 mi	5.50	$ 12,100	None	--	--	--	New fence	11.00 mi	11.00	$ **24,200**	Sagebrush burn	900 ac	900	$ 2,250
		Springs	2 ea	0.40	3,600					Springs	2 ea	0.40	3,600				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
		Sagebrush burn	900.00 ac	900.00	2,250							11.60	$ 28,700				
				906.10	18,850												
0481	Brandon Pasture	Alter fence	1.00 mi	--	$ 160.00	Alter fence	1.00 mi	--	$ 160	Alter fence	1.00 mi	--	$ 160				
		Sagebrush burn	75.00 ac	75.00	187.50									Sagebrush burn	122 ac	122	305
					$ 347.50												

0482	North Fork	Alter fence	3.00 mi	--	$ 480	Alter fence	3.00 mi	--	$ 480	Alter fence	3.00 mi	--	$ 480				
		Pipeline	1.50 mi	0.18	1,800					Pipeline	1.50 mi	0.18	1,800				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				0.38	$ 3,180							0.38	$ 3,180				
0485	Axolotl Lakes	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80	Alter fence	0.50 mi	--	$ 80				
		New fence	7.50 mi	7.50	16,500					Fence removal(R)	1.50 mi	1.50	600				
		Springs	1 ea	0.20	1,800					New fence	7.50 mi	7.50	16,500				
		Pipeline	0.50 mi	0.06	600					Springs	1 ea	0.20	1,800				
		Stock tanks	2 ea	0.20	900					Pipeline	0.50 mi	0.06	600				
				7.96	$ 19,880					Stock tanks	2 ea	0.20	900				
												9.46	$ 20,480				
0486	Hogback	New fence	2.00 mi	2.00	$ 4,400	None	--	--	--	New fence	2.00 mi	2.00	$ 4,400				
0488	Virginia City	New fence	1.50 mi	1.50	$ 3,300	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300				
0489	Benchmark	Alter fence	0.20 mi	--	$ 32	Alter fence	0.20 mi	--	$ 32	Alter fence	0.20 mi	--	$ 32	Sagebrush burn	441 ac	441	$ 1,102.50
		Pipeline	0.40 mi	0.01	48					New fence	0.50 mi	0.50	1,100				
		Stock tank	1 ea	0.10	450					Fence removal	0.50 mi	--	200				
		Sagebrush burn	300.00 ac	300.00	750					Stock tank	1 ea	0.10	450				
				300.11	$ 1,280					Pipeline	0.40 mi	0.01	48				
												0.61	$ 1,830				
0497	Davey Creek	New fence	2.25 mi	2.25	$ 4,950	None	--	--	--	New fence	2.25 mi	2.25	$ 4,950	Sagebrush burn	197 ac	197	$ 492.50
		Springs	4 ea	0.80	7,200					Springs	4 ea	0.80	7,200				
		Stock tanks	4 ea	0.40	1,800					Stock tanks	4 ea	0.40	1,800				
		Sagebrush burn	200.00 ac	200.00	500							3.45	$ 13,950				
				203.45	$ 14,450												
0498	Stone Creek	New fence	4.50 mi	4.50	$ 9,900	None	--	--	--	New fence	4.50 mi	4.50	$ 9,900	Sagebrush burn	123 ac	123	$ 307.50
		Springs	5 ea	1.00	9,000					Spring	5 ea	1.00	9,000				
		Stock tanks	5 ea	0.50	2,250					Stock tanks	5 ea	0.50	2,250				
		Sagebrush burn	100.00 ac	100.00	250							6.00	$ 21,150				
				106.00	$ 21,400												
0499	Idaho Jack	New fence	1.50 mi	1.50	$ 3,300	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300				
		Cattleguard	1 ea	0.02	1,700					Cattleguard	1 ea	0.02	1,700				
				1.52	$ 5,000							1.52	$ 5,000				
0512	Rock Creek	Wells	4 ea	0.08	$ 32,000	None	--	--	--	Wells	4 ea	0.08	$ 32,000				
		Pipeline	5.50 mi	0.66	6,600					Pipeline	5.50 mi	0.66	6,600				
		Stock tanks	13 ea	1.30	5,850					Stock tanks	13 ea	1.30	5,850				
				2.04	$ 44,450							2.04	$ 44,450				
0516	Spring Brook	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640	Alter fence	4.00 mi	--	$ 640				
		New fence	1.00 mi	1.00	2,200					New fence	1.00 mi	1.00	2,200				
		Wells	4 ea	0.08	32,000					Wells	4 ea	0.08	32,000				
		Springs	2 ea	0.40	3,600					Springs	2 ea	0.40	3,600				
		Pipeline	3.00 mi	0.36	3,600					Pipeline	3.00 mi	0.36	3,600				
		Stock tanks	4 ea	0.40	1,800					Stock tanks	4 ea	0.40	1,800				
				2.24	$ 43,840							2.24	$ 43,840				
0521	Virginia City Hill	New fence	1.25 mi	1.25	$ 2,750	None	--	--	--	New fence	1.25 mi	1.25	$ 2,750	Sagebrush burn	2,300 ac	2,300	$ 5,750
		Wells	3 ea	0.06	24,000					Wells	3 ea	0.06	24,000				
		Pipeline	1.50 mi	0.18	1,800					Pipeline	1.50 mi	0.18	1,800				
		Stock tanks	4 ea	0.40	1,800					Stock tanks	4 ea	0.40	1,800				
		Sagebrush burn	250.00 ac	250.00	625							1.89	$ 30,350				
				251.89	$ 30,975												

*(R) indicates that this development was recommended by the recreation specialist.

Developments shown are those proposed in addition to those listed in Alternative A.

Fiscal Year 1984
(Unless otherwise noted, the year of survey and design would be 1983, and construction would be done in 1984.)

		Alt. A: Proposed Grazing Mgmt. Program				Alternative B: Limited Action				Alt. C: Improved Watershed/Wildlife Values				Alt. D: Accelerated Forage Development			
Allotment No.	Allotment Name	Development	Units	Acres Disturbed	Estimated Development Costs	Development	Units	Acres Disturbed	Estimated Development Costs	Development*	Units	Acres Disturbed	Estimated Development Costs	Development#	Units	Acres Disturbed	Estimated Development Costs
0525	Middle Fork	New fence	0.50 mi	0.50	$ 1,100	None	--	--	--	New fence	0.50 mi	0.50	$ 1,100	Sagebrush burn	560 ac	560	$ 1,400
		Springs	2 ea	0.40	3,600					Springs	2 ea	0.40	3,600				
		Stock tanks	4 ea	0.40	1,800					Stock tanks	4 ea	0.40	1,800				
				1.30	$ 6,500							1.30	$ 6,500				
0526	Dry Lakes	New fence	0.50 mi	0.50	$ 1,100	None	--	--	--	New fence	0.50 mi	0.50	$ 1,100	Sagebrush burn	608 ac	608	$ 1,520
0530	McHessor Cr.	New fence	1.50 mi	1.50	$ 3,300	None	--	--	--	New fence	3.50 mi	3.50	$ 7,700				
		Springs	2 ea	0.40	3,600					Springs	2 ea	0.40	3,600				
		Stock tanks	2 ea	0.20	900					Stock tanks	2 ea	0.20	900				
				2.10	$ 7,800							4.10	$ 12,200				
0531	Copper Mtn.	New fence	0.50 mi	0.50	$ 1,100	None	--	--	--	New fence	1.25 mi	1.25	$ 2,750	Sagebrush burn	422 ac	422	$ 1,055
0533	Timber Cr.	New fence	1.50 mi	1.50	$ 3,300.00	None	--	--	--	New fence	1.50 mi	1.50	$ 3,300	Sagebrush burn	496 ac	496	$ 1,240
		Springs	2 ea	0.40	3,600.00					Springs	2 ea	0.40	3,600				
		Stock tanks	2 ea	0.20	900.00					Stock tanks	2 ea	0.20	900				
		Sagebrush burn	165.00 ac	165.00	412.50							2.10	$ 7,800				
				167.10	$ 8,212.50												

Alternative A Totals for Fiscal Year 1984

New fence	66.75 miles
Cattleguards	10 each
Fence alteration	19.44 miles
Sagebrush burning	4,527.00 acres
Sagebrush spraying	1,800.00 acres
Plowing and seeding	100.00 acres
Pipeline	37.99 miles
Stock tanks	94 each
Wells	13 each
Springs	31 each
Total acreage disturbed	6,512.93 acres
Total cost	$454,665.90

Alternative B Totals for Fiscal Year 1984

Cattleguards	1 each
Fence alteration	19.44 miles
Sagebrush burning	660.00 acres
Pipeline	12.00 miles
Stock tanks	18 each
Wells	2 each
Springs	3 each
Total acreage disturbed	662.44 acres
Total cost	$50,360.40

Alternative C Totals for Fiscal Year 1984

New fence	77.75 miles
Cattleguards	10 each
Fence alteration	19.44 miles
Fence removal	2.00 miles
Sagebrush burning	512.00 acres
Sagebrush spraying	1,200.00 acres
Plowing and seeding	100.00 acres
Pipeline	37.99 miles
Stock tanks	94 each
Wells	13 each
Springs	31 each
Total acreage disturbed	1,910.41 acres
Total cost	$461,228.40

Alternative D Totals for Fiscal Year 1984

New fence	66.75 miles
Cattleguards	10 each
Fence alteration	19.44 miles
Sagebrush burning	14,453.00 acres
Sagebrush spraying	13,799.00 acres
Plowing and seeding	100.00 acres
Pipeline	37.99 miles
Stock tanks	94 each
Wells	13 each
Springs	31 each
Total acreage disturbed	21,945.00 acres
Total cost	$647,466.90

*(R) indicates that this development was recommended by the recreation specialist. # Developments shown are those proposed in addition to those listed in Alternative A.

SOURCE: BLM, 1979

a. Alternative E, "No Action," and Alternative F, "Elimination of Livestock Grazing from Public Lands," are not shown because no range developments would be added under either alternative.

APPENDIX 15: IMPACTS ON SOILS BY ALTERNATIVE AND ALLOTMENT

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Pine Creek	0001	A	+	--	548	653	746	--	3,740	+	+	+
		B	+						3,740	+	+	+
		C	+						2,925	+	+	+
		D	+						3,740	+	+	+
		E	+						3,740	+	+	+
		F	+						1,259	+	+	+
Clark Canyon	0002	A	0	--	203	6,327	1,345	142	44,690	-	0	-
		B	0						44,690	-	0	-
		C	+						16,569	+	+	+
		D	0						44,690	-	0	-
		E	0						44,690	-	0	-
		F	+						8,683	+	+	+
Selway	0004	A	+	--	250	562	--	--	1,685	+	+	+
		B	+						1,685	+	+	+
		C	+						1,685	+	+	+
		D	+						1,685	+	+	+
		E	+						1,685	+	+	+
		F	+						796	+	+	+
Stonehouse	0005	A	-	--	1,706	17,565	8,633	--	66,073	0	0	0
		B	-						66,073	0	0	0
		C	+						33,027	+	+	+
		D	-						66,073	0	0	0
		E	-						66,073	0	0	0
		F	+						18,161	+	+	+
Armstead-Upper Sage	0007	A	0	--	1,967	5,781	2,722	--	31,805	0	0	0
		B	0						31,805	0	0	0
		C	+						13,626	+	+	+
		D	0						31,805	0	0	0
		E	0						31,805	0	0	0
		F	+						7,276	+	+	+
Junction Seeding	0009	A	-	57	583	173	94	--	1,463	-	+	-
		B	+						1,185	+	+	+
		C	+						703	+	+	+
		D	-						1,463	-	+	-
		E	+						1,185	+	+	+
		F	+						370	+	+	+
Crooked Creek	0010	A	X	--	--	2,588	--	--	5,998	-	0	-
		B	X						5,998	-	-	-
		C	X						4,869	+	+	+
		D	X						5,998	-	0	-
		E	X						5,998	-	0	-
		F	X						2,999	+	+	+
Mosman	0011	A	X	--	610	2,995	--	--	4,684	0	0	0
		B	X						4,684	0	0	0
		C	X						2,703	+	+	+
		D	X						4,684	0	0	0
		E	X						4,684	0	0	0
		F	X						1,777	+	+	+
Matador	0012	A	0	--	3,569	29,346	6,742	--	64,240	+	+	+
		B	0						64,240	+	+	+
		C	+						39,007	+	+	+
		D	0						64,240	+	+	+
		E	0						64,240	+	+	+
		F	+						20,642	+	+	+
Gallagher Mtn.	0013	A	+	--	1,155	10,236	2,145	--	20,994	+	+	+
		B	0						26,455	0	0	0
		C	+						15,532	+	+	+
		D	+						20,994	+	+	+
		E	0						26,455	0	0	0
		F	+						7,979	+	+	+
Barretts	0014	A	X	--	--	1,566	--	--	2,629	+	+	+
		B	X						2,999	+	+	+
		C	X						2,629	+	+	+
		D	X						2,629	+	+	+
		E	X						2,999	+	+	+
		F	X						1,518	+	+	+
Bannack	0015	A	-	--	207	6,273	2,857	49	62,148	-	+	-
		B	-						77,681	-	+	-
		C	+						21,438	+	+	+
		D	-						62,148	-	+	-
		E	-						77,681	-	+	-
		F	+						12,422	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Chinatown	0016	A	+	--	45	3,686	1,060	--	8,479	+	+	+
		B	+						8,479	+	+	+
		C	+						6,368	+	+	+
		D	+						8,479	+	+	+
		E	-						14,144	-	-	-
		F	+						2,795	+	+	+
Coyote Flats	0017	A	-	--	679	1,725	1,225	--	12,589	-	-	-
		B	-						12,589	-	-	-
		C	+						5,813	+	+	+
		D	-						12,589	-	-	-
		E	-						9,960	-	-	-
		F	+						2,740	+	+	+
Bear Creek	0018	A	X	558.8	238	--	--	--	870	+	+	+
		B	X						870	+	+	+
		C	X						870	+	+	+
		D	X						870	+	+	+
		E	X						870	+	+	+
		F	X						574	+	+	+
Rape Creek	0019	A	+	187	726	8,788	148	--	15,125	+	+	+
		B	-						24,252	-	-	-
		C	+						11,700	+	+	+
		D	+						15,125	+	+	+
		E	-						24,252	-	-	-
		F	+						6,276	+	+	+
North Black Canyon	0020	A	0	27	198	3,499	225	--	11,274	0	+	0
		B	0						11,274	0	+	0
		C	+						8,405	+	+	+
		D	0						11,274	0	+	0
		E	-						17,013	-	+	-
		F	+						3,573	+	+	+
Leadman	0021	A	-	--	200	1,188	749	--	14,015	-	-	-
		B	-						14,015	-	-	-
		C	+						8,646	+	+	+
		D	-						13,496	-	0	-
		E	-						22,697	-	0	-
		F	+						4,314	+	+	+
Dixon Mtn.	0022	A	X	40	423	720	821	--	4,239	+	+	+
		B	X						4,239	+	+	+
		C	X						4,239	+	+	+
		D	X						4,239	+	+	+
		E	X						8,109	-	-	-
		F	X						1,962	+	+	+
Trail Creek	0025	A	+	--	--	--	353	--	759	+	+	+
		B	+						759	+	+	+
		C	+						703	+	+	+
		D	+						759	+	+	+
		E	-						2,158	-	-	-
		F	+						333	+	+	+
Anderson Field	0026	A	X	--	--	5,913	292	--	10,960	0	0	0
		B	X						10,960	0	0	0
		C	X						8,738	+	+	+
		D	X						10,960	0	0	0
		E	X						16,162	0	0	0
		F	X						4,462	+	+	+
Tallent	0027	A	X	80	--	2,780	290	--	3,369	+	+	+
		B	X						5,017	+	+	+
		C	X						3,369	+	+	+
		D	X						3,369	+	+	+
		E	X						5,017	+	+	+
		F	X						1,648	+	+	+
Scudder Creek	0028	A	-	--	--	654	--	--	1,111	-	-	-
		B	-						1,111	-	-	-
		C	+						833	+	+	+
		D	-						1,111	-	-	-
		E	-						1,314	-	-	-
		F	+						370	+	+	+
Snowline	0029	A	X	174	2,587	5,606	683	--	4,795	+	+	+
		B	X						4,795	+	+	+
		C	X						4,795	+	+	+
		D	X						4,795	+	+	+
		E	X						10,108	0	0	0
		F	X						2,666	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Reservoir Creek	0030	A	–	--	44	2,919	3,128	--	75,385	–	–	–
		B	–						75,385	–	–	–
		C	+						25,122	+	+	+
		D	–						75,385	–	–	–
		E	–						64,610	–	–	–
		F	+						13,644	+	+	+
PHW	0031	A	0	--	--	5,392	3,501	--	47,097	0	+	0
		B	0						47,097	0	+	0
		C	+						26,159	+	+	+
		D	+						31,398	+	+	+
		E	–						49,726	–	–	–
		F	+						11,774	+	+	+
Exchange Pasture	0032	A	0	--	--	848	1,458	--	933	0	0	0
		B	0						933	0	0	0
		C	+						5,276	+	+	+
		D	0						9,331	0	0	0
		E	–						12,681	–	–	–
		F	+						2,740	+	+	+
Cross	0033	A	+	--	--	2,310	1,361	--	11,145	+	+	+
		B	+						11,145	+	+	+
		C	+						7,850	+	+	+
		D	+						11,145	+	+	+
		E	–						16,458	–	–	–
		F	+						3,814	+	+	+
Red Mine	0034	A	+	--	--	1,246	2,246	--	11,478	+	+	+
		B	+						11,478	+	+	+
		C	+						8,534	+	+	+
		D	+						11,478	+	+	+
		E	–						15,310	–	–	–
		F	+						2,962	+	+	+
Brenner Seeding	0035	A	–	--	--	1,924	708	--	5,184	+	+	+
		B	+						5,184	+	+	+
		C	+						3,573	+	+	+
		D	–						5,184	+	+	+
		E	–						9,145	–	–	–
		F	+						1,907	+	+	+
Baldy Mountain	0037	A	+	--	425	2,870	894	--	15,532	+	+	+
		B	–						17,254	–	+	–
		C	+						13,811	+	+	+
		D	+						15,532	+	+	+
		E	–						17,254	–	+	–
		F	+						5,424	+	+	+
Buck Creek	0038	A	X	--	323	13,116	2,378	--	34,323	+	+	+
		B	X						38,896	0	0	0
		C	X						25,159	+	+	+
		D	X						34,323	+	+	+
		E	X						38,896	0	0	0
		F	X						9,608	+	+	+
Muddy Creek	0039	A	+	--	8,640	3,265	2,400	--	10,345	+	+	+
		B	+						10,345	+	+	+
		C	+						82,753	+	+	+
		D	+						103,451	+	+	+
		E	–						103,451	–	–	–
		F	+						45,523	+	+	+
Price Creek	0040	A	+	4,011	--	1,760	240	1,220	10,423	+	+	+
		B	+						10,423	+	+	+
		C	+						10,423	+	+	+
		D	+						10,423	+	+	+
		E	+						15,440	+	+	+
		F	+						4,591	+	+	+
Rock Creek	0041	A	+	20	--	484	--	--	352	+	+	+
		B	+						352	+	+	+
		C	+						352	+	+	+
		D	+						352	+	+	+
		E	–						666	–	–	–
		F	+						185	+	+	+
Meadow Creek	0042	A	0	149	230	781	--	--	1,000	0	0	0
		B	0						1,000	0	0	0
		C	+						703	+	+	+
		D	0						1,000	0	0	0
		E	0						1,277	0	0	0
		F	+						463	+	+	+

* + = improved; – = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Converse	0117	A	X	--	144	634	97	--	3,962	0	0	0
		B	X						3,962	0	0	0
		C	X						3,036	+	+	+
		D	X						3,962	0	0	0
		E	X						4,776	0	0	0
		F	X						1,981	+	+	+
Robb Creek	0167	A	X	--	477	1,464	823	--	10,997	+	+	+
		B	X						10,997	+	+	+
		C	X						10,997	+	+	+
		D	X						10,997	+	+	+
		E	X						17,476	0	0	0
		F	X						3,666	+	+	+
Iron Rod	0268	A	X	--	--	5,333	349	--	12,330	0	0	0
		B	X						12,330	0	0	0
		C	X						8,386	+	+	+
		D	X						12,330	0	0	0
		E	X						16,440	0	0	0
		F	X						5,424	+	+	+
Copp-Jackson	0301	A	X	--	56	602	154	--	3,832	+	+	+
		B	X						3,832	+	+	+
		C	X						3,832	+	+	+
		D	X						3,832	+	+	+
		E	X						4,758	0	0	0
		F	X						1,777	+	+	+
Moose Creek	0303	A	X	--	38	2,810	2,285	--	12,070	+	+	+
		B	X						12,070	+	+	+
		C	X						7,757	+	+	+
		D	X						12,070	+	+	+
		E	X						18,957	0	0	0
		F	X						4,647	+	+	+
Camp Creek	0308	A	X	423	5,891	16,079	5,460	--	63,925	+	+	+
		B	X						63,925	+	+	+
		C	X						56,354	+	+	+
		D	X						92,509	0	0	0
		E	X						99,248	-	-	-
		F	X						32,805	+	+	+
Greenstone	0317	A	X	--	56	1,196	1,610	--	10,756	+	+	+
		B	X						10,756	+	+	+
		C	X						5,295	+	+	+
		D	X						9,516	+	+	+
		E	X						10,756	+	+	+
		F	X						3,480	+	+	+
Jerry Creek	0318	A	X	--	3,121	4,910	--	--	20,920	+	+	+
		B	X						20,920	+	+	+
		C	X						20,920	+	+	+
		D	X						24,252	0	0	0
		E	X						20,920	+	+	+
		F	X						8,479	+	+	+
Rochester Basin	0324	A	X	--	2,490	10,147	388	--	37,692	0	0	0
		B	X						37,692	0	0	0
		C	X						19,976	+	+	+
		D	X						34,675	0	+	+
		E	X						37,692	0	0	0
		F	X						12,070	+	+	+
Lelow Basin	0335	A	X	--	25	1,136	467	--	2,407	+	+	+
		B	X						2,407	+	+	+
		C	X						2,407	+	+	+
		D	X						2,407	+	+	+
		E	X						5,184	-	-	-
		F	X						1,185	+	+	+
Sweetwater	0471	A	X	--	6,703	5,157	--	--	13,922	+	+	+
		B	X						13,922	+	+	+
		C	X						10,793	+	+	+
		D	X						13,922	+	+	+
		E	X						21,938	-	-	-
		F	X						6,616	+	+	+
Deer Canyon	0749	A	X	--	--	295	115	--	389	+	+	+
		B	X						527	+	+	+
		C	X						389	+	+	+
		D	X						389	+	+	+
		E	X						527	+	+	+
		F	X						188	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Little Divide	0101	A	0	51	943	3,476	107	--	9,979	0	+	0
		B	0						12,108	0	0	0
		C	+						8,257	+	+	+
		D	–						9,257	–	+	–
		E	0						12,108	0	0	0
		F	+						4,425	+	+	+
Cabin Creek/ Morrison-Sweeny	0102	A	0	255	90	920	42	--	1,518	+	+	+
		B	0						1,814	0	0	0
		C	0						1,166	+	+	+
		D	0						1,703	+	+	+
		E	0						1,814	0	0	0
		F	+						648	+	+	+
Twin Lakes	0104	A	X	283	20	--	--	--	481	0	+	0
		B	X						481	0	+	0
		C	X						481	0	0	0
		D	X						611	0	0	0
		E	X						555	0	0	0
		F	X						463	+	+	+
Porcupine Canyon	0107	A	0	170	328	1,172	438	--	3,666	+	0	+
		B	0						3,692	0	0	0
		C	0						3,055	+	0	+
		D	0						3,666	0	0	0
		E	0						3,962	0	0	0
		F	+						1,888	+	+	+
Hansen Creek	0108	A	–	--	1,757	7,679	3,025	--	46,986	–	+	–
		B	–						54,817	–	0	–
		C	+						19,568	+	+	+
		D	0						48,930	0	+	0
		E	–						54,817	–	0	–
		F	+						11,737	+	+	+
Buhler	0109	A	X	--	--	320	--	--	222	0	+	0
		B	X						241	0	0	0
		C	X						222	0	+	0
		D	X						241	0	0	0
		E	X						241	0	0	0
		F	X						130	+	+	+
Pipe Organ Rock	0110	A	X	--	--	1,016	--	--	2,148	0	0	0
		B	X						1,759	0	0	0
		C	X						1,537	0	+	0
		D	X						2,203	0	0	0
		E	X						1,759	0	0	0
		F	X						759	0	+	0
Red Canyon	0113	A	X	--	31	1,883	213	--	3,629	+	+	+
		B	X						3,629	+	0	+
		C	X						3,499	+	+	+
		D	X						3,869	0	0	0
		E	X						4,610	–	0	–
		F	X						1,962	+	+	+
Bill Hill Creek	0114	A	X	--	--	1,484	80	--	1,629	0	+	0
		B	X						1,629	0	+	0
		C	X						1,629	0	+	0
		D	X						1,814	0	0	0
		E	X						1,666	0	0	0
		F	X						1,185	+	+	+
Antelope Butte	0118	A	X	--	--	390	596	--	1,259	0	0	0
		B	X						1,259	0	0	0
		C	X						1,259	0	0	0
		D	X						1,518	–	–	–
		E	X						1,685	0	0	0
		F	X						907	+	+	+
Pass Creek	0119	A	+	--	1,352	936	--	--	2,777	+	+	+
		B	0						2,777	0	+	+
		C	+						2,777	+	+	+
		D	–						5,221	–	+	–
		E	0						4,573	0	0	0
		F	+						1,463	+	+	+
Frenchie-Carroll-Holland	0120	A	X	--	--	5,301	978	--	20,883	+	+	+
		B	X						20,883	+	+	+
		C	X						16,717	+	+	+
		D	X						29,973	–	0	–
		E	X						28,510	0	0	0
		F	X						9,997	+	+	+

* + = improved; – = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Taylor Creek-Buffalo Creek	0122	A	-	--	351	3,385	1,821	--	16,328	-	+	-
		B	0						16,328	0	0	0
		C	+						13,070	+	+	+
		D	-						17,958	-	+	-
		E	0						19,605	0	0	0
		F	+						8,979	+	+	+
Huntsman	0123	A	+	--	5	1,622	--	--	2,684	+	+	+
		B	+						2,684	+	+	+
		C	+						2,684	+	+	+
		D	+						2,832	+	+	+
		E	+						2,684	+	+	+
		F	+						1,703	+	+	+
Cedar Creek	0124	A	X	--	378	1,510	1,969	--	8,090	+	+	+
		B	X						8,090	+	+	+
		C	X						7,294	+	+	+
		D	X						8,442	+	+	+
		E	X						8,090	0	0	0
		F	X						4,054	+	+	+
Ellis Peak	0126	A	+	--	126	1,783	1,099	--	4,423	+	+	+
		B	+						4,423	+	+	+
		C	+						2,823	+	+	+
		D	+						3,952	+	+	+
		E	0						6,963	0	0	0
		F	+						1,506	+	+	+
Big Spring Gulch	0129	A	X	--	463	3,550	407	--	14,064	0	-	0
		B	X						14,064	0	-	0
		C	X						10,868	0	+	0
		D	X						16,621	0	+	0
		E	X						14,064	0	-	0
		F	X						6,393	+	+	+
South Black Canyon	0130	A	+	--	839	1,568	--	--	3,185	+	+	+
		B	+						3,185	+	+	+
		C	+						3,185	+	+	+
		D	+						3,397	-	+	-
		E	-						3,503	-	0	-
		F	+						1,486	+	+	+
Frying Pan	0131	A	0	--	517	2,009	278	--	4,218	+	+	+
		B	0						4,218	+	+	+
		C	0						4,218	+	+	+
		D	0						4,867	0	+	0
		E	0						4,461	0	0	0
		F	+						2,352	+	+	+
Big Hole Road	0135	A	+	--	856	708	--	--	2,714	+	+	+
		B	0						2,850	0	0	0
		C	+						2,534	+	+	+
		D	0						2,714	+	+	+
		E	0						2,850	0	0	0
		F	+						1,357	+	+	+
Knox	0136	A	+	--	--	5,464	1,254	--	11,710	+	+	+
		B	0						15,613	0	0	0
		C	+						9,758	+	+	+
		D	+						12,296	+	+	+
		E	0						15,613	0	0	0
		F	+						4,489	+	+	+
Bull-Heifer Creek	0137	A	X	--	--	353	776	--	3,266	+	+	+
		B	X						3,266	+	+	+
		C	X						2,449	+	+	+
		D	X						3,266	0	+	0
		E	X						3,429	-	0	-
		F	X						1,372	+	+	+
Kent-Price Canyon	0138	A	X	--	--	526	984	--	5,311	0	+	0
		B	X						7,170	0	+	0
		C	X						3,187	+	+	+
		D	X						5,045	0	0	0
		E	X						7,170	0	0	0
		F	X						2,124	+	+	+
Mayberry	0143	A	X	86	4,347	5,982	189	--	14,540	+	-	+
		B	X						12,994	0	-	0
		C	X						12,375	+	+	+
		D	X						14,540	+	-	+
		E	X						12,994	0	-	0
		F	X						7,734	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Lemhi Pass	0145	A	0	86	4,347	5,982	189	--	14,540	+	–	+
		B	0						12,994	0	–	0
		C	+						12,375	+	+	+
		D	–						14,540	+	–	+
		E	0						12,994	0	–	0
		F	+						7,734	+	+	+
Matador-Blacktail	0147	A	X	--	1,286	2,444	637	--	9,784	0	0	0
		B	X						9,784	0	0	0
		C	X						8,072	+	+	+
		D	X						12,964	0	0	0
		E	X						9,784	0	0	0
		F	X						5,381	+	+	+
Rocky Hills	0148	A	–	--	942	9,475	5,390	--	56,322	0	+	0
		B	–						68,566	0	0	0
		C	+						46,527	+	+	+
		D	–						63,668	–	+	–
		E	–						68,566	0	0	0
		F	+						26,937	+	+	+
Radio-TV Tower	0149	A	+	--	--	1,573	--	--	3,180	+	0	+
		B	0						2,915	0	0	0
		C	+						2,915	+	0	+
		D	+						3,127	+	0	+
		E	0						2,915	0	0	0
		F	+						1,643	+	+	+
Lima Reservoir	0151	A	+	3,121	2,272	580	190	--	9,092	+	+	+
		B	–						10,696	0	0	0
		C	+						7,844	+	+	+
		D	+						10,696	–	+	–
		E	–						10,696	0	0	0
		F	+						4,279	+	+	+
Long Creek	0152	A	+	14,282	2,690	1,773	1,689	--	48,469	+	+	+
		B	0						48,469	0	0	0
		C	+						47,287	+	+	+
		D	+						48,469	+	+	+
		E	0						48,469	0	0	0
		F	+						14,777	+	+	+
Maiden Creek	0156	A	+	--	60	197	413	--	3,101	+	+	+
		B	–						4,070	–	–	–
		C	+						2,520	+	+	+
		D	+						3,198	+	+	+
		E	–						4,070	–	0	–
		F	+						1,085	+	+	+
Simpson Creek	0158	A	+	538	1,200	2,377	27	--	5,032	+	+	+
		B	–						5,991	–	+	–
		C	+						4,793	+	+	+
		D	+						6,111	+	+	+
		E	–						5,991	–	+	–
		F	+						2,157	+	+	+
Shineberger	0159	A	0	287	281	464	--	--	657	0	+	0
		B	–						716	–	0	–
		C	0						657	0	+	0
		D	0						985	0	+	0
		E	–						716	–	0	–
		F	+						478	+	+	+
Burns Mtn.	0160	A	–	--	--	1,129	--	--	1,372	–	–	–
		B	–						1,372	–	–	–
		C	+						1,241	+	+	+
		D	–						1,437	–	–	–
		E	–						1,372	–	–	–
		F	+						686	+	+	+
Buzztail	0161	A	X	--	--	492	56	--	666	+	0	+
		B	X						666	+	0	+
		C	X						666	+	0	+
		D	X						713	+	0	+
		E	X						666	+	0	+
		F	X						396	+	+	+
Coyote Creek	0165	A	–	--	--	796	160	--	1,659	–	0	–
		B	–						1,659	–	–	–
		C	+						1,161	+	+	+
		D	–						1,632	–	0	–
		E	–						1,880	–	0	–
		F	+						581	+	+	+

* + = improved; – = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Timber Butte	0168	A	0	--	998	2,646	--	--	6,670	0	0	0
		B	0						6,670	0	0	0
		C	0						6,670	0	0	0
		D	0						6,670	0	0	0
		E	0						6,670	0	0	0
		F	+						5,294	+	+	+
Saier Ind.	0169	A	+	--	320	--	--	--	130	+	0	+
		B	0						130	0	0	0
		C	+						110	+	+	+
		D	+						130	+	0	+
		E	0						130	0	0	0
		F	+						93	+	+	+
Henneberry Ridge	0171	A	0	--	--	1,194	96	--	1,679	0	+	0
		B	0						1,679	0	+	0
		C	+						1,306	+	+	+
		D	0						1,493	0	+	0
		E	0						1,679	0	+	0
		F	+						1,119	+	+	+
Ruby Dell	0172	A	+	525	3,382	200	--	--	9,090	+	-	+
		B	0						9,575	0	0	0
		C	+						8,969	+	+	+
		D	+						10,302	+	-	+
		E	0						9,575	0	0	0
		F	+						4,242	+	+	+
Gallagher Creek	0173	A	+	--	--	758	--	--	1,908	+	+	+
		B	0						2,522	0	0	0
		C	+						1,732	+	+	+
		D	+						2,631	+	+	+
		E	0						2,522	0	0	0
		F	+						1,096	+	+	+
Phalarope	0177	A	+	1,284	1,967	3,311	359	--	11,011	+	0	+
		B	0						10,611	0	0	0
		C	+						10,210	+	+	+
		D	+						11,411	+	-	+
		E	0						10,611	0	0	0
		F	+						4,805	+	+	+
Peet Rock	0179	A	X	--	867	89	--	--	1,161	+	+	+
		B	X						1,161	+	+	+
		C	X						871	+	+	+
		D	X						1,319	+	+	+
		E	X						1,504	0	0	0
		F	X						686	+	+	+
Kennison Spring	0182	A	X	--	--	1,329	64	--	2,478	+	0	+
		B	X						2,611	-	0	-
		C	X						2,478	+	+	+
		D	X						2,478	+	0	+
		E	X						2,611	-	0	-
		F	X						1,283	+	+	+
Shoshone Cove	0192	A	X	--	--	1,422	449	--	3,789	+	-	+
		B	X						3,789	0	-	0
		C	X						2,057	+	+	+
		D	X						3,789	+	-	+
		E	X						3,789	0	-	0
		F	X						1,894	+	+	+
William Bell Canyon	0193	A	+	--	3,195	1,981	1,393	--	14,471	+	+	+
		B	-						16,079	-	0	-
		C	+						11,715	+	+	+
		D	+						14,931	+	+	+
		E	-						16,079	-	0	-
		F	+						5,743	+	+	+
Bell Ranch	0197	A	X	--	--	764	1,484	--	13,075	+	+	+
		B	X						14,081	-	-	-
		C	X						8,046	+	+	+
		D	X						14,751	-	-	-
		E	X						14,081	-	-	-
		F	X						5,699	+	+	+
Rody	0199	A	-	200	84	614	110	--	2,158	0	-	0
		B	-						2,333	-	-	-
		C	+						1,895	+	+	+
		D	-						2,333	-	-	-
		E	-						2,333	-	-	-
		F	+						875	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allot- ment Number	Alter- native	Compac- tion*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infil- tration Rates*	Organic Matter Accumu- lation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Dry Boulder	0236	A	X	--	101	40	--	--	554	0	0	0
		B	X						569	0	0	0
		C	X						554	0	0	0
		D	X						569	0	0	0
		E	X						569	0	0	0
		F	X						255	+	+	+
Four Eyes	0269	A	+	133	433	930	2,765	--	700	+	+	+
		B	-						739	-	0	-
		C	+						506	+	+	+
		D	+						778	-	+	-
		E	-						739	-	0	-
		F	+						350	+	+	+
Lima Peaks	0270	A	X	--	985	--	368	--	1,315	0	0	0
		B	X						1,315	0	0	0
		C	X						1,179	+	+	+
		D	X						1,858	-	+	-
		E	X						1,315	0	0	0
		F	X						680	+	+	+
Bradley	0302	A	X	--	--	--	806	--	1,469	+	+	+
		B	X						3,031	-	-	-
		C	X						1,026	+	+	+
		D	X						1,469	+	+	+
		E	X						3,031	-	-	-
		F	X						769	+	+	+
Burk-Rieber	0305	A	+	--	--	932	310	--	2,335	+	+	+
		B	0						2,335	0	0	0
		C	+						2,335	+	+	+
		D	0						2,874	0	0	0
		E	-						3,521	0	0	-
		F	+						1,257	+	+	+
Glendale Common	0311	A	X	--	--	3,328	--	--	7,220	+	+	+
		B	X						8,664	-	-	-
		C	X						7,220	+	+	+
		D	X						7,605	+	+	+
		E	X						8,664	-	-	-
		F	X						4,236	+	+	+
Maiden Rock	0312	A	X	--	--	469	857	--	3,713	+	+	+
		B	X						4,690	-	0	-
		C	X						3,713	+	+	+
		D	X						4,299	+	+	+
		E	X						4,690	-	0	-
		F	X						2,149	+	+	+
Nelson	0313	A	X	--	190	305	--	--	307	+	+	+
		B	X						307	+	+	+
		C	X						307	+	+	+
		D	X						365	+	+	+
		E	X						307	+	+	+
		F	X						219	+	+	+
Garrison	0314	A	+	--	--	3,666	3,914	--	49,719	-	+	-
		B	-						49,719	-	-	-
		C	+						42,261	+	+	+
		D	+						57,177	-	+	-
		E	-						62,149	-	-	-
		F	+						19,888	+	+	+
Richards	0315	A	X	--	--	81	643	--	2,094	+	+	+
		B	X						4,189	-	-	-
		C	X						2,094	+	+	+
		D	X						3,560	0	0	0
		E	X						4,189	-	-	-
		F	X						1,466	+	+	+
Redfern	0316	A	X	--	--	587	--	--	4,919	+	+	+
		B	X						4,919	+	+	+
		C	X						4,919	+	+	+
		D	X						5,608	+	+	+
		E	X						5,608	0	0	0
		F	X						2,164	+	+	+
Gneiting	0319	A	X	--	--	280	815	--	3,643	-	-	-
		B	X						3,643	-	-	-
		C	X						1,900	+	+	+
		D	X						3,643	-	-	-
		E	X						3,643	-	-	-
		F	X						1,742	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Browns Cherry Creek	0320	A	+	--	249	1,898	1,117	--	9,528	+	+	+
		B	–						9,528	–	0	–
		C	+						6,193	+	+	+
		D	+						7,051	+	+	+
		E	–						10,481	–	0	–
		F	+						5,336	+	+	+
Lost Creek	0322	A	X	--	--	670	--	--	775	+	+	+
		B	X						930	0	0	0
		C	X						678	+	+	+
		D	X						814	+	+	+
		E	X						930	0	0	0
		F	X						581	+	+	+
McCartney Mtn.	0323	A	X	--	17,848	5,500	--	--	47,971	+	+	+
		B	X						47,971	0	0	0
		C	X						38,800	+	+	+
		D	X						48,677	+	+	+
		E	X						52,204	0	0	0
		F	X						21,164	+	+	+
Tungsten Mill	0326	A	X	--	30	1,760	--	--	2,394	+	+	+
		B	X						2,991	0	0	0
		C	X						2,393	+	+	+
		D	X						2,773	0	–	0
		E	X						2,991	0	0	0
		F	X						1,360	+	+	+
Devils Dancehall	0327	A	X	--	--	1,201	824	--	9,431	+	+	+
		B	X						9,431	0	0	0
		C	X						9,431	+	+	+
		D	X						3,971	+	+	+
		E	X						17,373	–	0	–
		F	X						6,453	+	+	+
Birch Creek-Willow Creek	0328	A	X	--	--	--	4,120	--	17,281	+	+	+
		B	X						19,068	–	–	–
		C	X						12,514	+	+	+
		D	X						17,281	+	+	+
		E	X						19,068	–	–	–
		F	X						6,793	+	+	+
Skeeters	0332	A	X	--	30	445	215	--	1,098	+	+	+
		B	X						1,597	0	0	0
		C	X						898	+	+	+
		D	X						1,198	+	+	+
		E	X						1,597	0	0	0
		F	X						479	+	+	+
Seven Springs-Big Hole	0337	A	0	--	--	2,605	--	--	5,953	0	+	0
		B	–						7,159	–	–	–
		C	+						4,898	+	+	+
		D	0						5,953	0	+	0
		E	–						7,159	–	–	–
		F	+						2,788	+	+	+
Deno Creek	0341	A	X	--	--	--	390	--	2,875	+	+	+
		B	X						2,875	–	–	–
		C	X						2,875	+	+	+
		D	X						3,821	+	+	+
		E	X						4,731	–	–	–
		F	X						1,492	+	+	+
Limekiln	0342	A	X	--	--	459	--	--	3,320	+	+	+
		B	X						3,320	–	–	–
		C	X						3,079	+	+	+
		D	X						4,166	+	+	+
		E	X						4,528	–	–	–
		F	X						1,630	+	+	+
Quartz Hill	0343	A	X	--	266	164	--	--	1,628	+	+	+
		B	X						1,628	–	–	–
		C	X						1,302	+	+	+
		D	X						1,864	+	+	+
		E	X						2,071	–	–	–
		F	X						740	+	+	+
Logan Smith	0345	A	X	--	284	1,156	399	--	3,037	+	+	+
		B	X						3,032	+	+	+
		C	X						3,032	+	+	+
		D	X						3,032	+	+	+
		E	X						3,032	+	+	+
		F	X						1,596	+	+	+

* + = improved; – = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Twin Adams	0347	A	X	--	--	1,149	50	--	2,081	+	+	+
		B	X						2,740	+	+	+
		C	X						2,081	+	+	+
		D	X						2,358	+	+	+
		E	X						2,740	+	+	+
		F	X						1,040	+	+	+
Georgia Gulch	0348	A	X	350	1,280	401	--	--	5,947	+	+	+
		B	X						5,947	+	+	+
		C	X						5,947	+	+	+
		D	X						6,839	+	+	+
		E	X						7,137	0	0	0
		F	X						2,676	+	+	+
Alder Creek	0351	A	X	108	2,057	--	--	--	2,817	+	+	+
		B	X						3,318	0	0	0
		C	X						2,817	+	+	+
		D	X						3,443	+	+	+
		E	X						3,318	0	0	0
		F	X						1,628	+	+	+
Lower Rochester Basin	0353	A	X	--	--	1,333	--	--	2,275	+	+	+
		B	X						2,275	+	+	+
		C	X						2,275	+	+	+
		D	X						2,699	+	+	+
		E	X						3,085	+	+	+
		F	X						1,311	+	+	+
Seyler Pasture	0354	A	X	--	120	580	2,120	--	15,091	+	+	+
		B	X						17,946	-	-	-
		C	X						5,710	+	+	+
		D	X						11,828	+	+	+
		E	X						17,946	-	-	-
		F	X						3,671	+	+	+
Sparrow Ditch	0377	A	X	--	--	270	--	--	250	+	+	+
		B	X						317	0	0	0
		C	X						208	+	+	+
		D	X						275	+	+	+
		E	X						317	0	0	0
		F	X						133	+	+	+
Windy Pass	0385	A	X	--	--	233	--	--	964	+	+	+
		B	X						964	+	+	+
		C	X						964	+	+	+
		D	X						1,446	+	+	+
		E	X						1,446	0	0	0
		F	X						506	+	+	+
Preacher Creek	0404	A	X	--	744	--	--	--	818	0	0	0
		B	X						818	0	0	0
		C	X						818	0	0	0
		D	X						1,076	-	0	-
		E	X						818	0	0	0
		F	X						430	+	+	+
Revenue Common	0407	A	X	--	158	1,065	--	--	2,769	+	+	+
		B	X						2,769	+	+	+
		C	X						2,769	+	+	+
		D	X						3,362	+	+	+
		E	X						4,153	0	0	0
		F	X						1,318	+	+	+
Strawberry Ridge	0421	A	X	--	--	1,220	--	--	2,758	+	+	+
		B	X						2,758	0	0	0
		C	X						2,758	+	+	+
		D	X						3,089	+	+	+
		E	X						3,861	0	0	0
		F	X						1,379	+	+	+
Fletcher-Moore	0428	A	X	9	387	1,281	--	--	2,568	+	+	+
		B	X						2,568	+	+	+
		C	X						2,568	+	+	+
		D	X						3,210	+	+	+
		E	X						3,456	0	0	0
		F	X						1,481	+	+	+
Shaw Basin	0433	A	X	--	--	393	--	--	634	+	+	+
		B	X						768	0	+	+
		C	X						634	+	+	+
		D	X						634	+	+	+
		E	X						768	0	+	+
		F	X						346	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Kountz	0443	A	X	--	227	1,109	12	--	1,170	+	+	+
		B	X						1,170	+	+	+
		C	X						1,170	+	+	+
		D	X						1,326	0	+	0
		E	X						1,170	+	+	+
		F	X						858	+	+	+
Wallace Peak	0447	A	X	--	107	91	--	--	1,111	+	+	+
		B	X						1,111	+	+	+
		C	X						1,111	+	+	+
		D	X						1,481	+	+	+
		E	X						1,518	0	0	0
		F	X						815	+	+	+
Ballard	0456	A	+	749	132	6	--	--	1,334	+	+	+
		B	+						1,334	+	+	+
		C	+						949	+	+	+
		D	-						1,539	-	+	-
		E	0						1,539	0	0	0
		F	+						564	+	+	+
Bryan	0459	A	X	--	87	763	57	--	1,181	+	+	+
		B	X						1,181	+	+	+
		C	X						1,181	+	+	+
		D	X						1,469	+	+	+
		E	X						1,837	0	0	0
		F	X						656	+	+	+
Granite Creek	0468	A	X	97	239	912	--	--	1,444	+	+	+
		B	X						1,444	+	+	+
		C	X						1,372	+	+	+
		D	X						1,516	+	+	+
		E	X						1,986	+	+	+
		F	X						758	+	+	+
Belmont	0469	A	X	--	6,781	2,723	--	--	19,244	-	-	-
		B	X						20,619	-	-	-
		C	X						15,670	+	+	+
		D	X						18,694	-	-	-
		E	X						20,619	-	-	-
		F	X						7,423	+	+	+
Mill Gulch	0475	A	X	--	--	667	--	--	1,158	+	+	+
		B	X						1,640	-	-	-
		C	X						1,158	+	+	+
		D	X						1,351	+	+	+
		E	X						1,640	-	-	-
		F	X						617	+	+	+
Garden Creek	0479	A	X	752	2,317	4,108	--	--	16,178	-	-	-
		B	X						16,178	-	-	-
		C	X						11,766	+	+	+
		D	X						17,649	-	-	-
		E	X						17,649	-	-	-
		F	X						6,471	+	+	+
Brandon Pasture	0481	A	X	--	--	742	--	--	944	+	+	+
		B	X						1,180	0	0	0
		C	X						944	+	+	+
		D	X						1,073	+	+	+
		E	X						1,180	0	0	0
		F	X						537	+	+	+
North Fork	0482	A	X	--	55	2,276	47	--	5,741	+	+	+
		B	X						6,664	0	0	0
		C	X						5,741	+	+	+
		D	X						6,971	+	+	+
		E	X						6,664	0	0	0
		F	X						2,563	+	+	+
Axolotl Lakes	0485	A	+	3,594	1,669	1,837	--	--	6,367	+	+	+
		B	+						6,367	+	+	+
		C	+						6,367	+	+	+
		D	-						7,394	-	+	-
		E	0						8,626	0	+	0
		F	+						2,875	+	+	+
Hogback	0486	A	X	--	--	871	--	--	1,310	0	+	0
		B	X						1,638	0	+	0
		C	X						1,310	0	+	0
		D	X						1,512	0	+	0
		E	X						1,638	0	+	0
		F	X						630	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Virginia City	0488	A	+	--	335	2,143	--	--	3,294	+	+	+
		B	+						3,294	+	+	+
		C	+						3,294	+	+	+
		D	+						3,893	+	+	+
		E	0						5,240	0	+	0
		F	+						1,123	+	+	+
Benchmark	0489	A	X	--	498	880	--	--	1,509	0	0	0
		B	X						1,509	0	0	0
		C	X						1,509	0	0	0
		D	X						1,795	0	0	0
		E	X						2,406	0	0	0
		F	X						816	+	+	+
Barton Gulch	0490	A	X	--	--	411	--	--	8,322	+	+	+
		B	X						12,436	-	-	-
		C	X						8,322	+	+	+
		D	X						8,322	+	+	+
		E	X						12,436	-	-	-
		F	X						4,018	+	+	+
Davey Creek	0497	A	X	--	843	468	11	--	8,772	+	+	+
		B	X						9,447	0	0	0
		C	X						7,085	+	+	+
		D	X						8,604	+	+	+
		E	X						9,447	0	0	0
		F	X						4,049	+	+	+
Stone Creek	0498	A	X	--	1,916	671	--	--	5,492	+	+	+
		B	X						5,492	+	+	+
		C	X						5,492	+	+	+
		D	X						7,908	0	+	0
		E	X						8,787	0	0	0
		F	X						3,075	+	+	+
Idaho Creek	0499	A	X	--	645	1,140	--	--	8,329	+	+	+
		B	X						8,329	+	+	+
		C	X						7,913	+	+	+
		D	X						10,689	0	0	0
		E	X						11,383	0	0	0
		F	X						4,581	+	+	+
Wisconsin Creek	0501	A	X	219	770	70	--	--	1,958	+	+	+
		B	X						3,525	0	0	0
		C	X						1,762	+	+	+
		D	X						2,311	+	+	+
		E	X						3,525	0	0	0
		F	X						940	+	+	+
California Creek	0507	A	X	36	446	1,771	184	--	5,735	+	+	+
		B	X						5,735	+	+	+
		C	X						4,718	+	+	+
		D	X						7,493	0	0	0
		E	X						8,418	0	0	0
		F	X						2,683	+	+	+
Rattlesnake	0510	A	+	--	--	849	485	--	3,528	0	+	0
		B	-						4,782	-	0	-
		C	+						2,352	+	+	+
		D	0						4,429	0	+	0
		E	-						4,782	-	0	-
		F	+						1,215	+	+	+
Rock Creek	0512	A	+	152	3,286	1,652	--	--	11,190	+	+	+
		B	0						11,190	0	0	0
		C	+						11,190	+	+	+
		D	0						16,169	0	-	0
		E	-						16,638	0	0	0
		F	+						4,123	+	+	+
Spring Brook	0516	A	0	207	1,862	3,886	246	--	14,604	0	+	+
		B	0						14,604	0	+	+
		C	+						9,310	+	+	+
		D	-						19,533	-	+	0
		E	-						21,907	-	0	0
		F	+						6,207	+	+	+
Sweetwater Basin	0518	A	X	--	530	839	--	--	6,732	-	-	-
		B	X						7,128	-	-	-
		C	X						2,534	+	+	+
		D	X						6,732	-	-	-
		E	X						7,128	-	-	-
		F	X						1,426	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allot-ment Number	Alter-native	Compac-tion*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infil-tration Rates*	Organic Matter Accumu-lation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Virginia City Hill	0521	A	0	1,020	1,570	--	--	--	4,495	+	+	+
		B	0						4,795	+	+	+
		C	+						3,596	+	+	+
		D	0						4,795	+	+	+
		E	0						4,795	+	+	+
		F	+						1,948	+	+	+
Wall Creek	0522	A	0	--	302	508	--	--	703	+	+	+
		B	-						937	0	0	0
		C	+						539	+	+	+
		D	-						773	+	+	0
		E	-						937	0	0	0
		F	+						328	+	+	+
Middle Fork	0525	A	0	--	30	2,144	--	--	3,647	+	+	+
		B	0						3,647	+	+	+
		C	0						3,647	+	+	+
		D	0						3,647	+	+	+
		E	0						3,647	+	+	+
		F	+						1,698	+	+	+
Dry Lakes	0526	A	X	128	1,330	796	--	--	3,624	+	+	+
		B	X						3,624	+	+	+
		C	X						2,738	+	+	+
		D	X						2,980	+	+	0
		E	X						4,429	0	0	0
		F	X						1,852	+	+	+
McHessor Creek	0530	A	X	--	636	495	--	--	8,442	+	+	+
		B	X						12,522	0	0	0
		C	X						7,879	+	+	+
		D	X						10,412	0	+	+
		E	X						12,522	-	-	-
		F	X						5,065	+	+	+
Copper Mountain	0531	A	X	26	715	956	--	--	3,794	+	+	+
		B	X						3,794	+	+	+
		C	X						3,007	+	+	+
		D	X						4,296	+	+	+
		E	X						5,727	0	0	0
		F	X						1,861	+	+	+
Timber Creek	0533	A	X	54	2,576	824	--	--	5,921	+	0	+
		B	X						5,921	+	+	+
		C	X						4,051	+	+	+
		D	X						6,440	0	+	+
		E	X						10,491	-	-	0
		F	X						2,701	+	+	+
Nicholia School-Rio Puerco	0699	A	0	44	1,295	5,497	744	646	36,164	+	+	0
		B	-						77,892	-	0	-
		C	+						20,029	+	+	+
		D	0						51,465	0	+	0
		E	-						77,892	-	0	-
		F	+						14,466	+	+	+
Thomas	0702	A	-	1,038	195	288	--	--	2,464	+	+	+
		B	-						2,728	0	0	0
		C	+						1,628	+	+	+
		D	0						2,508	+	+	+
		E	-						2,728	0	0	0
		F	+						880	+	+	+
Wolfe	0703	A	X	--	436	176	28	--	1,055	+	+	+
		B	X						1,407	0	0	0
		C	X						1,000	+	+	+
		D	X						1,055	+	+	+
		E	X						1,407	0	0	0
		F	X						500	+	+	+
Wheat	0706	A	X	--	--	412	--	--	798	+	+	+
		B	X						798	+	+	+
		C	X						798	+	+	+
		D	X						798	+	+	+
		E	X						798	+	+	+
		F	X						453	+	+	+
Fish Creek	0708	A	-	--	1,940	2,226	--	--	7,713	0	0	0
		B	-						8,556	-	0	-
		C	+						4,338	+	+	+
		D	-						6,869	0	+	+
		E	-						8,556	-	0	-
		F	+						2,290	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Staudenmeyer	0710	A	X	128	1,852	963	--	--	13,692	0	0	0
		B	X						13,692	0	0	0
		C	X						8,087	+	+	0
		D	X						14,898	+	+	0
		E	X						19,580	0	0	0
		F	X						4,427	+	+	+
Wellborn-Dell	0714	A	X	--	789	554	82	--	3,234	+	+	+
		B	X						6,344	-	-	-
		C	X						3,029	+	+	+
		D	X						3,929	+	+	+
		E	X						6,344	-	-	-
		F	X						1,637	+	+	+
Whitworth	0720	A	+	--	418	280	495	--	5,649	+	0	+
		B	-						9,792	-	-	-
		C	+						3,013	+	+	+
		D	+						5,273	+	+	+
		E	-						9,792	-	-	-
		F	+						1,582	+	+	+
Small Horn Canyon	0722	A	X	--	5	446	--	--	796	+	+	+
		B	X						796	0	0	0
		C	X						796	+	+	+
		D	X						926	+	+	+
		E	X						1,200	0	0	0
		F	X						496	+	+	+
Horse Prairie Livestock	0725	A	X	29	--	532	1,946	--	6,475	+	+	+
		B	X						6,475	+	+	+
		C	X						3,765	+	+	+
		D	X						7,530	0	+	0
		E	X						12,800	-	-	-
		F	X						2,184	+	+	+
Roe Ranch	0727	A	X	--	1,561	4,443	829	--	14,823	+	+	+
		B	X						23,529	-	-	-
		C	X						12,239	+	+	+
		D	X						18,588	+	+	+
		E	X						23,529	-	-	-
		F	X						6,823	+	+	+
Jones-Peet	0730	A	+	341	229	557	277	--	18,951	+	+	+
		B	-						32,507	-	-	-
		C	+						11,066	+	+	+
		D	0						21,441	+	+	0
		E	-						32,507	-	-	-
		F	+						6,640	+	+	+
Sand Dunes	0732	A	X	--	679	--	--	--	1,669	+	+	+
		B	X						3,830	0	-	0
		C	X						1,669	+	+	+
		D	X						2,357	+	0	+
		E	X						3,830	0	-	0
		F	X						923	+	+	+
Snowcrest	0734	A	X	--	883	--	--	--	1,101	+	+	+
		B	X						1,101	+	+	+
		C	X						1,101	+	+	+
		D	X						1,305	+	+	+
		E	X						1,101	+	+	+
		F	X						775	+	+	+
Forsythe	0735	A	X	108	872	3,131	--	--	9,513	+	+	+
		B	X						9,513	+	+	+
		C	X						5,113	+	+	+
		D	X						10,227	0	+	+
		E	X						14,508	0	0	0
		F	X						2,973	+	+	+
Cocanougher	0738	A	+	--	235	--	--	--	374	+	+	+
		B	+						374	+	+	+
		C	+						374	+	+	+
		D	0						680	+	+	+
		E	-						1,122	-	-	-
		F	+						177	+	+	+
East Clover Creek	0740	A	+	65	1,504	1,203	--	--	5,773	+	+	+
		B	+						5,773	+	+	+
		C	+						4,651	+	+	+
		D	0						6,896	0	+	0
		E	+						5,773	+	+	+
		F	+						2,085	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

Allotment Name	Allotment Number	Alternative	Compaction*	Erosion Condition Class (in acres)					Sediment Yield in Tons per Year	Infiltration Rates*	Organic Matter Accumulation*	Permeability*
				Stable	Slight	Moderate	Critical	Severe				
Indian Creek	0741	A	+	50	173	1,806	826	--	6,791	+	+	+
		B	+						6,791	+	+	+
		C	+						4,851	+	+	+
		D	-						9,261	0	+	0
		E	-						10,143	-	-	-
		F	+						2,470	+	+	+
Taylor Creek	0745	A	X	--	43	115	1,152	--	3,706	+	+	+
		B	X						12,222	-	-	-
		C	X						1,695	+	+	+
		D	X						4,850	0	+	0
		E	X						12,222	-	-	-
		F	X						946	+	+	+
Medicine Lodge	0748	A	-	--	2,389	5,612	1,140	--	21,865	+	+	+
		B	-						33,875	0	0	0
		C	+						17,245	+	+	+
		D	-						27,100	0	0	0
		E	-						33,875	0	0	0
		F	+						11,086	+	+	+
Bannock Pass	0753	A	X	--	408	68	--	--	812	+	+	+
		B	X						1,267	-	0	0
		C	X						620	+	+	+
		D	X						1,102	0	+	+
		E	X						1,267	-	0	0
		F	X						317	+	+	+
Dad Creek	0758	A	X	--	--	401	55	--	1,338	+	+	+
		B	X						6,501	-	0	0
		C	X						1,281	+	+	+
		D	X						2,906	0	0	0
		E	X						6,501	-	0	0
		F	X						822	+	+	+

* + = improved; - = deteriorated; 0 = static; X = little or no impact.

SOURCE: BLM, 1979.

APPENDIX 16: TERRESTRIAL AND AQUATIC WILDLIFE IN THE STUDY AREA--COMMON AND SCIENTIFIC NAMES

Common Name	Scientific Name
MAMMALS	
Pronghorn antelope	*Antilocapra americana*
Moose	*Alces alces*
Elk	*Cervus canadensis*
White-tailed deer	*Odocoileus virginianus*
Mule deer	*Odocoileus hemionus*
Mountain goat	*Oreamnos americanus*
Bighorn sheep	*Ovis canadensis*
Beaver	*Castor canadensis*
Great Basin pocket mouse	*Perognathus parvus*
Hoary marmot	*Marmota caligata*
Least chipmunk	*Eutamias minimus*
Richardson's ground squirrel	*Spermophilus richardsonii*
Western jumping mouse	*Zapus princeps*
Western deer mouse	*Peromyscus maniculatus*
Muskrat	*Ondatra zibethicus*
Sagebrush vole	*Lagurus curtatus*
Meadow vole	*Microtus pennsylvanicus*
Canada lynx	*Lynx canadensis*
Grizzly bear	*Ursus arctos*
Black bear	*Ursus americanus*
Wolf	*Canis lupus*
Coyote	*Canis latrans*
Otter	*Lutra canadensis*
Spotted skunk	*Spilogale gracilis*
Wolverine	*Gulo gulo*
Mink	*Mustela vison*
Preble shrew	*Sorex preblei*
Vagrant shrew	*Sorex vagrans*
Spotted bat	*Euderma maculatum*
Western Big-eared bat	*Plecotus townsendii*
Long-legged bat	*Myotis volans*
Fringed bat	*Myotis thysanodes*
BIRDS	
Great blue heron	*Ardea herodias*
Whistling swan	*Olor columbianus*
Trumpeter swan	*Olor buccinator*
Canada goose	*Branta canadensis*
Mallard	*Anas platyrhynchos*
Gadwall	*Anas strepera*
Pintail	*Anas acuta*
Green-winged teal	*Anas crecca*

Common Name	Scientific Name
BIRDS (continued)	
American widgeon	*Anas americana*
Northern shoveler	*Anas clypeata*
Lesser scaup	*Aythya affinis*
Goshawk	*Accipiter gentilis*
Cooper's hawk	*Accipiter cooperii*
Red-tailed hawk	*Buteo jamaicensis*
Swainson's hawk	*Buteo swainsoni*
Ferruginous hawk	*Buteo regalis*
Golden eagle	*Aquila chrysaetos*
Bald eagle	*Haliaeetus leucocephalus*
Marsh hawk	*Circus cyaneus*
Osprey	*Pandion haliaetus*
Prairie falcon	*Falco mexicanus*
Peregrine falcon	*Falco peregrinus*
Pigeon hawk	*Falco columbarius*
American kestrel	*Falco sparverius*
Blue grouse	*Dendragapus obscurus*
Spruce grouse	*Canachites canadensis*
Ruffed grouse	*Bonasa umbellus*
Sage grouse	*Centrocercus urophasianus*
Sandhill crane	*Grus canadensis*
Mountain plover	*Charadrius montanus*
Long-billed curlew	*Numenius americanus*
Upland sandpiper	*Bartramia longicauda*
Mourning dove	*Zenaida macroura*
Great horned owl	*Bubo virginianus*
Pygmy owl	*Glaucidium gnoma*
Burrowing owl	*Speotyto cunicularia*
Barred owl	*Strix varia*
Great gray owl	*Strix nebulosa*
Long-eared owl	*Asio otus*
Short-eared owl	*Asio flammeus*
Saw-whet owl	*Aegolius acadicus*
Common flicker	*Colaptes auritus*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Empidonax flycatcher	*Empidonax spp.*
Olive-sided flycatcher	*Nuttallornis borealis*
Horned lark	*Eremophila alpestris*
Clark's nutcracker	*Nucifraga columbiana*
Mountain chickadee	*Parus gambeli*
House wren	*Troglodytes aedon*

Common Name	Scientific Name
BIRDS (continued)	
Sage thrasher	*Oreoscoptes montanus*
American robin	*Turdus migratorius*
Western bluebird	*Sialia mexicana*
Ruby-crowned kinglet	*Regulus calendula*
Warbling vireo	*Vireo gilvus*
Yellow warbler	*Dendroica petechia*
Yellow-rumped warbler	*Dendroica coronata*
MacGillivray's warbler	*Oporornis tolmiei*
Wilson's warbler	*Wilsonia pusilla*
Western meadowlark	*Sturnella neglecta*
Lazuli bunting	*Passerina amoena*
Green-tailed towhee	*Chlorura chlorura*
Grasshopper sparrow	*Ammodramus savannarum*
Vesper sparrow	*Pooecetes gramineus*
Dark-eyed junco	*Junco hyemalis*
Brewer's sparrow	*Spizella breweri*
White-crowned sparrow	*Zonotrichia leucophrys*
AMPHIBIANS	
Tailed frog	*Ascaphus truei*
Tiger salamander (axolotl)	*Ambystoma tigrinum*
Wood frog	*Rana sylvatica*
FISHES	
Salmonidae (trout)	
Mountain whitefish	*Prosopium williamsoni*
Golden trout	*Salmo aquabonita*
Cutthroat trout	*Salmo clarki*
Rainbow trout	*Salmo gairdneri*
Brown trout	*Salmo trutta*
Brook trout	*Salvelinus fontinalis*
Lake trout	*Salvelinus namaycush*
Artic grayling	*Thymallus arcticus*
Cyprinidae (minnows and carps)	
Carp	*Cyprinus carpio*
Utah chub	*Gila atraria*
Longnose dace	*Rhinichthys cataratae*
Redside shiner	*Richardsonius balteatus*

Common Name	Scientific Name
FISHES (continued)	
Catostomidae (suckers)	
Longnose sucker	*Catostomus catostomus*
White sucker	*Catostomus commersoni*
Mountain sucker	*Catostomus platyrhynchus*
Ictaluridae (freshwater catfishes)	
Stonecat	*Noturus flavus*
Gadiae (codfishes)	
Burbot	*Lota lota*
Cottidae (sculpins)	
Mottled sculpin	*Cottus bairdi*
Shorthead sculpin	*Cottus confusus*
Various aquarium fishes	

SOURCES: Mammals--R.S. Hoffman and D. L. Pattie, A Guide to Montana Mammals (Missoula, MT: University of Montana, 1968); birds--P. D. Skarr, Montana Bird Distribution (Bozeman, MT: By the Author, 501 South Third, 1975); amphibians--Montana, Department of Fish and Game, Montana Wildlife (Amphibians) (1971); fishes--names after American Fisheries Society, Committee on Names of Fishes, A List of Common and Scientific Names of Fishes from the United States and Canada, 3rd ed., Special Publication no. 6 (Washington: American Fisheries Society, 1970). List developed from Brown, C.J.D., Fishes of Montana (Bozeman, MT: Big Sky Books, 1971).

APPENDIX 17: COMMON AND SCIENTIFIC NAMES OF PLANTS

Common Name	Scientific Name
GRASSES AND GRASSLIKE PLANTS	
Basin wildrye	*Elymus cinereus*
Bearded wheatgrass	*Agropyron subsecundum*
Bluebunch wheatgrass	*Agropyron spicatum*
Blue grama	*Bouteloua gracilis*
Bluegrass, Kentucky	*Poa pratensis*
Bluegrass, Sandberg	*Poa secunda*
Brome, mountain	*Bromus marginatus*
Brome, smooth	*Bromus inermis*
Cheatgrass	*Bromus tectorum*
Columbia needlegrass	*Stipa columbiana*
Elk sedge	*Carex geyeri*
Foxtail barley	*Hordeum jubatum*
Idaho fescue	*Festuca idahoensis*
Indian ricegrass	*Oryzopsis hymenoides*
Junegrass	*Koeleria cristata*
Kentucky bluegrass	*Poa pratensis*
Mountain brome	*Bromus marginatus*
Needle-and-thread	*Stipa comata*
Pinegrass	*Calamagrostis rubescens*
Rough fescue	*Festuca scabrella*
Sandberg bluegrass	*Poa secunda*
Sedge	*Carex spp.*
Sedge, elk	*Carex geyeri*
Slender wheatgrass	*Agropyron trachycaulum*
Smooth brome	*Bromus inermis*
Thickspike wheatgrass	*Agropyron dasystachyum*
Timothy	*Phleum pratensis*
Western wheatgrass	*Agropyron smithii*
Wildrye	*Elymus spp.*
Wildrye, basin	*Elymus cinereus*
FORBS	
Arrowleaf balsamroot	*Balsamorhiza sagittata*
Aster	*Aster spp.*
Balsamroot, arrowleaf	*Balsamorhiza sagittata*
Beargrass	*Xerophylium spp.*
Buckwheat	*Fagopyrum esculentum*
Bull thistle	*Cirsium vulgare*
Burdock	*Arctium minus*
Canada thistle	*Circius arvense*
Caraway	*Carum carvi*
Common tansy	*Tanacetum vulgare*

Common Name	Scientific Name
FORBS (continued)	
Curlycup gumweed	*Grindelia squarrosa*
Dalmatian toadflax	*Linaria dalmatica*
Dandelion	*Taraxacum officinale*
False flax	*Camelina sativa*
Fringed sagewort	*Artemisia frigida*
Goat's beard	*Tragopogon dubius*
Houndstongue	*Cynoglossum officinale*
Larkspur, tall	*Delphinium occidentale*
Leafy spurge	*Euphorbia esula*
Lemhi penstemon	*Penstemon lemhiensis*
Lupine	*Lupinus spp.*
Milkvetch	*Astragalus miser*
Miner's lettuce	*Montia perfoliata*
Musk thistle	*Carduus nutans*
Pepperweed	*Lepidium perfoliatum*
Phlox	*Phlox spp.*
Prickly pear	*Opuntia polyacantha*
Spotted knapweed	*Centaurea maculosa*
Sweet clover	*Melilotus officinalis*
Tall larkspur	*Delphinium occidentale*
Vetch	*Vicia spp.*
White pointloco	*Oxytropis sericea*
Whitetop	*Cardaria draba*
Yarrow	*Achillea millefolium*
TREES AND SHRUBS	
Alder	*Alnus sinuata*
Alkali sagebrush	*Artemisia longiloba*
Quaking aspen	*Populus tremuloides*
Basin sagebrush	*Artemisia tridentata tridentata*
Big sagebrush	*Artemisia tridentata*
Bitterbrush	*Purshia tridentata*
Black sagebrush	*Artemisia arbuscula nova*
Broom snakeweed	*Gutierrezia sarothrae*
Buffaloberry	*Shepherdia canadensis*
Chokecherry	*Prunus virginiana*
Cinquefoil, shrubby	*Potentilla fruiticosa*
Common juniper	*Juniperus communis*
Curleaf mountain mahogany	*Cercocarpus ledifolius*
Currant	*Ribes spp.*
Dogwood	*Cornus stolonifera*
Douglas-fir	*Pseudotsuga menziesii*

Common Name	Scientific Name
TREES AND SHRUBS (continued)	
Douglas' rabbitbrush	*Chrysothamnus viscidiflorus*
Englemann spruce	*Picea engelmannii*
Greasewood	*Sarcobatus vermiculatus*
Horsebrush	*Tetradymia canescens*
Juniper, common	*Juniperus communis*
Juniper, Rocky Mountain	*Juniperus scopulorum*
Kinnikinnick	*Arctostaphylos uva-ursi*
Limber pine	*Pinus flexilis*
Lodgepole pine	*Pinus contorta*
Low sagebrush	*Artemisia arbuscula*
Mahogany, curlleaf	*Arcocarpus ledifolius*
Mountain sagebrush	*Artemisia tridentata vaseyana*
Ninebark	*Physocarpus malvaceus*
Ponderosa pine	*Pinus ponderosa*
Rabbitbrush, Douglas'	*Chrysothamnus viscidiflorus*
Rabbitbrush, rubber	*Chrysothamnus nauseosus*
Rocky Mountain juniper	*Juniperus scopulorum*
Rubber rabbitbrush	*Chrysothamnus nauseosus*
Serviceberry	*Amelanchier alnifolia*
Shrubby cinquefoil	*Potentilla fruiticosa*
Silver sagebrush	*Artemisia cana*
Skunkbush	*Rhus trilobata*
Snakeweed, broom	*Gutierrezia sarothrae*
Snowberry	*Symphoricarpus spp.*
Spruce, Engelmann	*Picea engelmannii*
Subalpine fir	*Abies lasiocarpa*
Three-tip sagebrush	*Artemisia tripartita*
Whitebark pine	*Pinus albicaulis*
Whortleberry	*Vaccinium scoparium*
Willow	*Salix spp.*
Winterfat	*Eurotia lanata*
Woods rose	*Rosa woodsii*
Wyoming sagebrush	*Artemisia tridentata wyomingensis*

SOURCE: BLM, 1979. Scientific names taken from U.S., Department of Agriculture, Soil Conservation Service, Standardized Plant Names for Montana (Bozeman, MT: 1976).

TABLE 18A

FORB COMPOSITION ON MULE DEER AND ANTELOPE SUMMER-FALL HABITAT IN THE MOUNTAIN SAGE TYPE (NORTH BLACK CANYON AMP 0020)

Pasture/ Transect	Forb Canopy Coverage	Pasture Average Canopy	Allotment Average Canopy	Major Forb Species Identified	Mule Deer Preferred[a]	
					Summer	Fall
One						
1	9.8%			*Lupinus sericeus*	Low	Moderate
2	27.1%			*Castilleja sulphurea*	Moderate	Low
3	17.0%	17.9%		*Antennaria spp.*	Trace	Low
				Achillea millefolium	Low	Low
Two				*Taraxacum officinale*	Moderate	Low
1A	9.8%			*Sedum stenopetalum*	Trace	Trace
2A	24.2%			*Erigeron compositus*	Trace	Trace
1B	12.1%			*Arnica cordifolia*	Moderate	Low+
2B	21.4%			*Astragalus spp.*	Moderate	High[b]
3B	13.8%			*Geranium viscosissimum*	Moderate	--
4B	7.5%			*Calohortus nuttallii*	Trace	--
1D	10.8%			*Eriogonum heracleoides*	--	--
2D	10.8%			*Geum triflorum*	Low	--
3D	15.3%	14.0%		*Cerastium arvense*	Trace	Trace
				Linum lewisii	Unknown	Unknown
Three				*Cryptantha spp.*	--	Trace
1C	30.1%			*Lithospermum spp.*	Moderate	--
2C	17.7%			*Fragaria virginiana*	Low	Moderate
3C	19.9%			*Tragopogon dubius*	Moderate	Moderate
4C	11.3%	19.8%	17.2%	*Cirsium foliosum*	Moderate	Moderate

a. Source: U.S., Department of Agriculture, Forest Service, *Foods of the Rocky Mountain Mule Deer*, by Roland C. Kufeld, O.C. Wallmo, and Charles Feddema, Research Paper RM-111 (Fort Collins, CO: Rocky Mountain Forest and Range Experiment Station, 1973).

b. Based on observations by BLM biologists.

TABLE 18B

PLANT SPECIES COMPOSITION[a] ON THE GREENHORN-BARTON-DAVEY CREEK ELK WINTER HABITAT
(Agsp/Feid Habitat Type--AMPs 0490, 0499)

Species	Percentage Canopy Coverage		Percentage Frequency		Percentage Composition		Elk Winter Preference[c]
	Habitat Area	Mueggler & Handl[b]	Habitat Area	Mueggler & Handl[b]	Habitat Area	Mueggler & Handl[b]	
Agropyron spicatum	10.4	18	68.0	100	18.2		High
Agropyron smithii	0	1	0	20	0		High
Festuca idahoensis	9.5	36	55.5	100	15.5		High
Koeleria cristata	3.5	4	46.4	98	6.9		Moderate
Poa spp.	0.3	4	5.4	80	0.5		Moderate-high
Bromus tectorum	0.1	T	2.6	22	0.2		Moderate
Stipa comata	2.6	3	22.6	59	5.1		Low-moderate[d]
Carex spp.	T	15	0.3	0	0.02		Moderate
Total Grasses	26.4	66			46.4	71	
Lupinus sericeus	2.4	3	17.8	59	3.8		High
Astragalus spp.	5.4	1	42.3	30	9.8		Moderate
Antennaria rosea	2.1	2	17.1	83	3.6		Low
Haplopappus spp.	0.5	0	7.1	0	0.9		Unknown
Phlox spp.	1.9	4	22.9	0	4.6		Low
Erigeron spp.	0.5	2	18.4	57	0.9		Unknown
Allium spp.	0.1	1	8.0	74	0.7		Unknown
Achillea millefolium	T	1	3.8	85	0.1		Low
Artemisia frigida	1.8	2	26.6	83	3.0		Low
Lomatium spp.	T	T	--	--	T		Unknown
Cerastium spp.	T	2	--	46	T		Low[d]
Eriogonum spp.	T	T	--	15	T		Moderate
Comandra umbellata	T	T	--	35	T		Probably low[d]
Castilleja spp.	T	T	--	15	T		Probably low[d]
Aster spp.	T	T	--	2	T		Moderate
Total Forbs	14.7	23			27.4	25	
Tetradymia canescens	T	T	0.3	33	T		Moderate
Artemisia tridentata	6.3	T	25.2	35	10.9		Moderate
Chrysothamnus viscidiflorus	3.1	1	30.9	39	5.3		Moderate[d]
Chrysothamnus nauseosus	0.4	T	2.3	20	0.6		Low[d]
Gutierrezia sarothrae	0	T	0	33	0		Low[d]
Rosa arkansana	0	T	0	15	0		Moderate
Total Shrubs	9.8	1+			16.8	3	
Grand Total	50.9	92+					

a. As measured on ten transects using Daubenmire (1959) method.

b. U.S., Department of Agriculture, Forest Service, Mountain Grassland and Shrubland Habitat Types of Western Montana, by W. F. Mueggler and W. P. Handl (Ogden, UT: Intermountain Forest and Range Experiment Station, 1974).

c. Source: U.S., Department of Agriculture, Forest Service, Foods of the Rocky Mountain Mule Deer, by Roland C. Kufeld, O. C. Wallmo, and Charles Feddema, Research Paper RM-111 (Fort Collins, CO: Rocky Mountain Forest and Range Experiment Station, 1973).

d. Based on observations by BLM biologists.

APPENDIX 19: COMPARISON OF IMPACTS ON SOILS

TABLE 19A: IMPACTS ON SOILS OF EXISTING, REVISED, AND PROPOSED AMPs

Physical Characteristic	Existing Situation[a]			Implementation Phase	Alternative																	
					A			B			C			D			E			F		
	+	-	0		+	-	0	+	-	0	+	-	0	+	-	0	+	-	0	+	-	0
Compaction[b]																						
Number of AMPs	4	48	27	Little or no change	40	17	22	19	31	29	73	0	6	32	27	20	4	48	27	79	0	0
Percentage					22%	9%	12%	10%	17%	16%	39%	0%	4%	17%	15%	11%	2%	26%	15%	43%		
Infiltration Rate																						
Number of AMPs	20	74	92	Little or no change	132	17	37	68	49	69	174	0	12	101	37	48	20	74	92	186	0	0
Percentage					71%	9%	20%	36%	26%	38%	94%	0%	6%	54%	20%	26%	10%	40%	50%	100%		
Permeability																						
Number of AMPs	21	68	97	Little or no change	132	17	37	70	47	69	174	0	12	104	31	51	21	68	97	186	0	0
Percentage					71%	9%	20%	37%	25%	38%	94%	0%	6%	56%	17%	27%	11%	37%	52%	100%		
Organic Matter Accumulation																						
Number of AMPs	28	50	108	Little or no change	141	13	32	79	36	71	177	0	9	130	16	40	28	50	108	186	0	0
Percentage					76%	7%	17%	49%	19%	39%	95%	0%	5%	70%	8%	22%	15%	27%	58%	100%		

SOURCE: BLM, 1979

NOTE: Trends in erosion are an average of the respective percentages in infiltration rates, permeability, and organic matter accumulation.

a. + = improvement; - = deterioration; 0 = static.

b. There are 107 existing, revised, and proposed AMPs that have limited impact on compaction and are not considered here.

TABLE 19B: IMPACTS ON SOILS ON NON-AMPs AND UNALLOTTED AREAS

Physical Characteristic	Existing Situation[a]			Implementation Phase	Alternative																	
					A			B			C			D			E			F		
	+	-	0		+	-	0	+	-	0	+	-	0	+	-	0	+	-	0	+	-	0
Compaction[b]																						
Number of AMPs	0	26	17	Little or no change	7	21	15	7	21	15	18	15	10	7	21	15	0	26	17	43	0	0
Percentage					2%	6%	5%	2%	6%	5%	5%	5%	3%	2%	6%	5%	0%	8%	5%	13%		
Infiltration Rate																						
Number of AMPs	18	78	236	Little or no change	34	69	229	34	69	229	49	63	220	35	69	228	18	78	236	332	0	0
Percentage					10%	21%	69%	10%	21%	69%	15%	19%	66%	10%	21%	69%	5%	23%	72%	100%		
Permeability																						
Number of AMPs	17	80	235	Little or no change	33	70	229	33	70	229	48	64	220	36	69	227	17	80	235	332	0	0
Percentage					10%	21%	69%	10%	21%	69%	15%	19%	66%	11%	21%	68%	5%	24%	71%	100%		
Organic Matter Accumulation																						
Number of AMPs	19	145	168	Little or no change	34	126	172	34	126	172	52	114	166	36	126	170	19	145	168	332	0	0
Percentage					10%	38%	52%	10%	38%	52%	16%	34%	50%	11%	38%	51%	5%	44%	51%	100%		

SOURCE: BLM, 1979

NOTE: Trends in erosion are an average of the respective percentages in infiltration rates, permeability, and organic matter accumulation.

a. + = improvement; - = deterioration; 0 = static.

b. There are 289 non-AMPs and unallotted areas that have limited impact on compaction and are not considered here.

APPENDIX 20: PLANNING SYSTEM INTERRELATIONSHIPS

MFP Step 1 Recommendations for Range/Livestock	MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock	MFP Step 1 Conflicts and Multiple Use Considerations	MFP Step 3 Decision	Resource Trade-Offs
RM 1.1, 1.2, 1.3, 1.4, & 1.6	Wildlife			
Reduce the current permitted use on 251 range allotments and increase the licensed use on 114 allotments to meet newly established permitted capacity of 110,033 AUMs. Allocate increased forage production on implemented AMPs to livestock. Manage to obtain maximum forage production from public lands within 25 years. Develop and implement allotment management plans within specified grazing systems on 175 units to improve range condition. Revise grazing systems on 22 existing AMPs, and continue the present system on 26 AMPs.	WL 1.0. Allocate increase in forage resulting from improved range condition on implemented AMPs to elk, whose winter habitats are involved.	1.0. Elk and livestock could both benefit from increased forage production. Should either wildlife or livestock exclusively benefit from AMP implementation and management?	1.0. Increased forage production will be allocated to livestock only after a multidisciplinary review has determined that increased livestock use will not be detrimental to wildlife or watershed values on specified allotments.	1.0. No trade-offs were made at this time. Provisions were made for future flexibility in allocating increased forage production.
	WL 1.1. Manage this tract primarily for the benefit of wintering elk.	1.1. This 640-acre tract is unfenced and surrounded on three sides by private land held by a land development company. As many as 74 wintering elk have been observed on the tract. Fencing or riding would be necessary to keep livestock from trespassing on private land.	1.1. Discontinue the grazing lease on Wigwam custodial 503. Discourage livestock use by not allowing water development or salting.	1.1. A total of 49 AUMs allocated to wildlife.
	WL 1.2. Combine Sacry Custodial (430) and Sparrow Ditch (377) allotments. Coordinate this management system with Shaw Basin allotment 433.	1.2. Elk and cattle compete for forage. Sacry and Sparrow Ditch allotments are too small to be fenced and managed separately.	1.2. Implement rest-rotation system on Shaw Basin and a deferred rest system on Sparrow Ditch. Coordinate systems and allocate 22 AUMs to elk.	1.2. A total of 22 AUMs allocated to wildlife.
	WL 1.3, 1.4. Provide deer and elk optimum forage and disturbance-free habitat on the identified area.	1.3, 1.4. Grazing systems requested do not conflict. Conflicts exist between elk and cattle for forage, and there is social intolerance on summer elk range.	1.3, 1.4. Provide forage for elk by implementing a deferred rotation system on Preacher Creek and Strawberry Ridge allotments and a rest-rotation system on Wallace Peak allotment. Reduce authorized use by 77 AUMs on Wallace Peak, 37 AUMs on Windy Pass, and 64 AUMs on Strawberry Ridge. Hold present use level on Preacher Creek.	1.3, 1.4. No direct reductions of AUMs made for wildlife, but reduced livestock use will benefit wildlife. Reduction is based on reduced surveyed carrying capacity and suitability deductions.

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	WL 1.5. Provide 100 AUMs annually for wintering elk on Revenue allotment (407). Provide deer and elk summer habitat which has optimal forage and is disturbance- (avoidance reaction) free from livestock on the upper portion of allotment 407.	1.5. Forage and avoidance conflicts between wildlife and livestock.	1.5. Provide elk forage on allotment 407 by implementing a deferred rest grazing system and reducing the authorized use by 70 AUMs.	1.5. Reduction is based on reduced surveyed carrying capacity and suitability reductions. This reduction will benefit elk.
	WL 1.7. Allocate all forage on allotment 428 for use by wintering elk.	1.7. Because of livestock grazing, winter forage is not adequate to sustain wintering elk herd.	1.7. Implement a deferred rest grazing system and reduce authorized use by 92 AUMs.	1.7. AUM reduction is based on carrying capacity and is not a direct allocation to elk, but it will benefit elk.
	WL 1.8. Allocate all forage to wintering elk on allotments 440 and 543.	1.8. Livestock grazing consumes forage for winter elk range.	1.8. Discontinue lease on allotment 543 and allocate 35 AUMs of forage to elk on allotment 440.	1.8. A total of 47 AUMs allocated to elk. Discontinue lease on allotment 543.
	WL 1.9. Allocate 40 AUMs for fall-early winter use by elk, and implement a grazing system that will defer livestock use during spring and early summer on allotment 399.	1.9. Livestock use creates an avoidance reaction by elk, which forces them to leave calving areas and spring-summer range. Riparian and meadow vegetation is in poor condition.	1.9. Implement a rest-rotation grazing system with turnout no earlier than 7/21, and use initial stocking rate of 89 AUMs.	1.9. No spring grazing for livestock.
	WL 1.10. Reserve 64 AUMs for elk use on allotment 734.	1.10. Year-round use occurs by elk, which creates forage and avoidance reaction conflicts between elk and livestock.	1.10. Implement a deferred rotation system and allocate 64 AUMs to elk.	1.10. Allocate 64 AUMs to elk.
	WL 1.11. Reserve 175 AUMs for winter-early spring elk use on allotment 154.	1.11. Approximately 100 wintering elk use this area. Livestock consumption of forage reduces the quantity available for elk.	1.11. Implement a deferred rest grazing system and allocate 175 AUMs to elk.	1.11. Allocate 175 AUMs to elk.
	WL 1.12. Allocate no forage increases above 1977 livestock use levels until elk forage requirements are determined on allotments 708 and 735.	1.12. Insufficient elk use data available to determine proper AUM allocation.	1.12. Accept recommendation WL 1.12.	1.12. None.

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	WL 1.14. Reserve 515 AUMs for elk winter and spring use on allotment 172.	1.14. Livestock consumption of forage on elk winter-spring range supporting approximately 100 elk.	1.14. Implement a deferred rest grazing treatment and allocate 515 AUMs to elk.	1.14. Allocate 515 AUMs to elk.
	WL 1.15. Allocate 420 AUMs to wintering elk. Do not let stock use exceed 10 percent by weight, and allow no salting on this portion of allotment 147.	1.15. Winter use of this area by 120 elk conflicts with livestock use. Salting would increase livestock use of the area and remove forage needed by wintering elk.	1.15. Implement a deferred rotation grazing system. Limit livestock use of key winter elk range to 10% by weight. If utilization exceeds 10% over a 3-year period, exclude livestock by fencing key ranges.	1.15. Livestock use discouraged on elk winter use areas. If this cannot be achieved through management, then livestock use will be excluded. (See 1.18.)
	WL 1.16. Allocate all forage on these sites to elk. Exclude livestock grazing by fencing. Allocate 245 AUMs for summer elk use on this portion of allotment 147.	1.16. Conflicts between livestock use and elk exist. Competition for forage and avoidance reaction by elk to cattle are the primary concerns.	1.16. No salting will be allowed in elk summer use areas. Reduce authorized use by 132 AUMs on allotment 147, and implement a deferred rotation grazing system.	1.16. No direct allocations made to elk. Suitability deductions made will benefit wildlife. Discourage livestock use through management restrictions. (See 1.18.)
	WL 1.17. Allocate 500 AUMs to elk, reduce livestock use to the new surveyed capacity, and provide rest pastures as identified each year within allotment 0002.	1.17. Approximately 60 to 70 elk utilize the area on a yearlong basis. Social incompatability between elk and livestock is the basic conflict. Competition for forage is also a factor.	1.17. Reduce livestock use to 1,783 AUMs; continue the present four-pasture deferred rotation grazing system on pastures 1, 2, 3, and 4 of allotment 0002 and the three-treatment rest-rotation on Dry Gulch. Coordinate grazing systems on allotments 0002 and 0013 to provide rest pastures each year.	1.17. Allocation of 317 AUMs to wildlife occurred in MFP Step 1. No direct allocation was made as a result of MFP Step 3.
	WL 1.18. Guarantee elk forage on allotment 143 by not permitting salting and allowing no sheepherding in the fall and winter on the timbered knob.	1.18. Sheep and cattle compete for forage on this area, which winters 50 elk. Salting and herding would increase livestock use of the area.	1.18. Accept recommendation WL 1.18.	1.18. No reductions are incurred by livestock even though forage that could be utilized by livestock will be reserved for elk use.
	WL 1.19. Authorize no livestock use and allocate all forage to elk on the identi-	1.19, 1.20. Livestock and elk compete for forage on both summer and winter ranges.	1.19, 1.20. Continue present grazing system. Do not allocate forage to elk at this	1.19, 1.20. Elk habitat will not be maximized.

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	fied area within allotment 0013. WL 1.20. Allocate 60 AUMs for wintering elk in the Henneberry Flats Pasture of allotment 0013.	Avoidance of cattle by elk forces the elk into less desirable habitat.	time. Allocate forage increases only after a multi-disciplinary review has been made. Provide rest pastures in elk use areas annually by coordinating grazing systems on allotments 0013, 0002, and 0117.	
	WL 1.21. Allocate 577 AUMs to wintering elk, plus all forage increases. Limit utilization to 50% in the "use" pastures, and implement a two-pasture rest and defer treatment system. Do not salt in the Taylor pasture, and remove the alkali pasture fences of allotment 167.	1.21. Approximately 1,000 elk winter in this area, which adjoins the state of Montana Blacktail Game Range. Forage consumed by livestock is not available for winter elk use. Considerable fall use and spring calving also occurs on the area. Avoidance reaction by elk to cattle is a concern.	1.21. Rest one pasture each year to provide elk forage. Continue present two-pasture grazing management system. Authorized use is from 8/1 to 8/30.	1.21. None.
	WL 1.22. Reserve 350 AUMs for wintering elk on allotment 0037.	1.22. Livestock consumption of forage on winter elk ranges reduces the amount of forage available for elk.	1.22. Provide elk forage with the existing rest-rotation grazing system.	1.22. None.
	WL 1.24. Reserve 100 AUMs for wintering elk on allotment 0148. Provide 50 AUMs in both the North and Brown Springs pastures.	1.24. Winter elk migration within this area requires 100 AUMs to maintain existing herds. Cattle use removes potential winter elk forage.	1.24. Implement a rest-rotation grazing system and reduce authorized use by 257 AUMs.	1.24. No direct allocation of AUMs was made to elk. Reductions for suitability, etc., will benefit elk.
	WL 1.25. Reserve 20 AUMs on allotment 182 for wintering elk.	1.25. 50 elk utilize this area 10% of the winter. Livestock consumptions of forage removes potential elk forage.	1.25. Classify the Dutchman Mountains area as unsuitable for grazing because of steep topography (32 AUMs).	1.25. None. The required elk forage is provided from areas that are unsuitable for livestock grazing.
	WL 1.26. Reserve 150 AUMs on allotment 0016 for wintering elk.	1.26. Livestock consume forage that could be used by 150 elk for winter forage.	1.26. Implement a rest-rotation grazing system. Graze the 640-acre pasture within pasture C once every three	1.26. None.

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			years from July 1 to July 10 when pasture C is rested. Coordinate with adjoining USFS grazing systems.	
	WL 1.27. Reserve 75 AUMs on allotment 0020 for elk winter use. Do not allow salting on specified areas.	1.27. 25 elk utilize the area during the winter. Livestock trailing and trespass have overutilized the area in the past and resulted in inadequate residual forage for wintering elk.	1.27. Do not allow any salting or water development on the identified area. Reduce actual use by 229 AUMs.	1.27. Allocate 75 AUMs to wildlife and 154 AUMs to watershed. Discourage livestock use on a portion of the allotment through management restrictions. (See 1.18.)
	WL 1.28. Reserve 27 AUMs for winter elk use on allotment 0001.	1.28. Only minor livestock use occurs on the ridge in question. Elk utilize the area for winter range. Maintenance of present situation is desired.	1.28. Discourage livestock use by not allowing salting or winter development.	1.28. None.
	WL 1.29. Reserve 56 AUMs, cease grazing not later than 6/15 to provide regrowth, and do not exceed 30% to 40% utilization on allotment 0156 to provide winter elk forage.	1.29. Approximately 150 elk utilize this area for winter range. Elk would utilize additional forage if it were provided.	1.29. Reduce authorized use by 67 AUMs and implement a deferred rotation grazing system designed to allow regrowth on part of the allotment.	1.29. None.
	WL 1.30. Allocate 490 AUMs to elk and coordinate grazing systems on allotments 0039 and 0699 to provide a rest pasture each year in elk use areas. Maintain the existing grazing systems. Limit utilization to 30% above the 7,000-foot elevation on allotment 0039 each year that the Muddy Creek pasture of allotment 0699 is rested.	1.30. About 100 elk winter in this area, and some summer-fall use occurs. The potential exists to double the elk herd. If all three pastures are grazed by stock each year, an increase in elk numbers cannot be accommodated.	1.30. Provide elk forage by resting one pasture annually on either 0039 or 0699 allotment.	1.30. None.
	WL 1.31. Improve elk summer habitat by deferring use until after 7/15 and providing a full year's rest within the grazing systems on allotments 0728 and 0193.	1.31. Social intolerance and dietary overlaps of elk and cattle are problems on these summer elk ranges.	1.31. Implement a deferred rotation system on allotment 0728 and a deferred rest system on the Mountain pasture of allotment 0193.	1.31. None.

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	WL 1.32. Allocate 100 AUMs to elk and deer, and reduce livestock stocking rate to 50% of the usable AUMs to provide early winter elk forage and late summer-fall deer forage.	1.32. Approximately 25 deer and 50 to 200 elk utilize this area. Competition for forage with livestock is a problem.	1.32. Provide deer and elk forage with rest pastures when available (50% of the time) and allocate 100 AUMs of forage to wildlife when rest pastures will not be available on allotments 0270 and 0029.	1.32. A total of 50 AUMs allocated to wildlife in MFP step 1 on allotment 0029. Wildlife was allocated 50 AUMs on allotment 0270 as a result of MFP step 3.
	WL 1.33. Allocate no livestock use on 2/3 of this area each year to accommodate summer-fall elk use.	1.33. No significant livestock use occurs at present. Maintenance of this situation is necessary if the current high elk summer-fall use is to be maintained. Avoidance reaction and forage utilization are potential future problems.	1.33. Reduce authorized livestock use by 547 AUMs and implement a deferred rest grazing system on allotment 0485.	1.33. Wildlife was allocated 65 AUMs, and another 62 AUMs will be available because pasture 2a will not be grazed for watershed purposes. Additional livestock use reductions as a result of the range survey will also benefit wildlife.
	WL 1.34,1.37. Provide annual rest areas on 30% of the identified area. Provide annual rest on 50% of allotment 0530 for elk summer-fall use.	1.34,1.37. Approximately 25 elk inhabit this area. Potential exists to increase the elk herd to 100 head. Social intolerance and overutilization of moist sites are problems.	1.34,1.37. Implement deferred rotation and rest-rotation grazing systems on 0479, 0469, 0498, and 0530 allotments. Reduce authorized use by 1153 AUMs, and do not authorize livestock use in the east part of section 34, T6S,R6W, located in allotment 0680.	1.34,1.37. A total of 55 AUMs allocated to summering elk. Additional livestock use reductions as a result of range survey will also benefit wildlife.
	WL 1.35. Designate the Jerry-Johnson area as an Area of Critical Environmental Concern (ACEC). Rest 50% of allotment 0318 annually. This represents 550 AUMs. Cease grazing by 7/1 to allow regrowth. Do not allow additional stock water developments.	1.35. No conflicts exist. Maintenance of existent grazing systems will provide forage needed to maintain elk and deer on this important winter range.	1.35. Consider this area for ACEC designation upon publication of final ACEC regulations. Allow 50% rest of the area annually, allow no additional stock water developments, and remove livestock by 7/1 annually.	1.35. None.
	WL 1.39. Remove wild horses and livestock, and allocate all forage to wintering elk on allotments 0490, 0499, and 0482.	1.39. Horses and livestock compete with elk for winter forage. Wild horse herd is increasing. Range condition is generally poor and the elk herd is declining.	1.39. Remove wild horses, reduce authorized livestock use by 178 AUMs, implement rest-rotation, deferred rest, and deferred grazing systems on allotments 0490, 0499 and 0482.	1.39. Wild horses will not exist on public lands. Additional livestock use reductions as a result of the range survey will benefit wildlife.

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	WL 1.40. Allocate all forage to wildlife on the five identified areas.	1.40. All tracts are unleased and livestock grazing is excluded. No conflicts exist.	1.40. Accept WL 1.40 recommendation.	1.40. None. Livestock will continue to be excluded.
	WL 1.41. Allocate 50 AUMs and hold livestock utilization to less than 50% on 0526 and 0456 allotments for wintering elk.	1.41. Approximately 30 elk winter on these tracts. Some summer and elk calving use also occurs. Forage competition with livestock is the primary conflict.	1.41. Implement rest-rotation and deferred rotation grazing systems, and reduce authorized use by 186 AUMs on allotment 0526 and 50 AUMs on allotment 0456.	1.41. Reductions are based on surveyed carrying capacity and suitability but will benefit elk.
	WL 1.42. Allocate all forage on this tract to wildlife.	1.42. Cattle make heavy use of this mesic habitat, which is very important to summering elk. Forage and social avoidance are conflicts.	1.42. Fence this tract to exclude livestock and allocate all forage to wildlife.	1.42. Reduction of 35 AUMs from allotment 0530 will occur when cattle are excluded.
	WL 1.43. Allocate 150 AUMs to wintering elk by excluding livestock use in the Horse Creek pasture of allotment 0531-0532 and providing a rest treatment within the remainder of the allotment.	1.43. About 70 head of elk utilize this area for winter range. Livestock use is heavy because of topography. Riparian habitat is in poor condition.	1.43. Implement rest-rotation grazing in the Horse Creek pasture. Reduce authorized use on the basis of new range survey. Implement a deferred rest grazing system on the remainder of the allotment.	1.43. No direct reduction for wildlife; however, wildlife will benefit from increased residual forage.
	WL 1.44. Allocate all forage for elk, deer and maintenance of riparian habitat purposes on allotment 0475.	1.44. Substantial use of the area by deer and elk occurs. Riparian habitat is in poor condition because of heavy livestock use. This is a steep, narrow canyon in which stock use is confined to the bottom.	1.44. Provide wildlife forage by implementing rest-rotation grazing system on both allotments 0475 and 0489 and coordinating rest pastures to maximize the benefits for elk.	1.44. Reductions resulting from new survey carrying capacity and suitability will benefit elk.
	WL 1.45. Allocate 75 AUMs to wintering elk on allotment 0348.	1.45. Substantial elk use occurs in pasture 1, and there is competition for forage between elk and livestock.	1.45. Implement a rest-rotation grazing system and allocate 75 AUMs to elk in pasture 1. Allocate any increased forage production in pasture 1 to elk if elk numbers increase.	1.45. 75 AUMs allocated to elk.
	WL 1.46. Rest at least 30% of this area annually and allocate 100 AUMs to accommodate elk winter use.	1.46. Wintering elk make sporadic use of this area because of lack of dependable forage surplus. This results from livestock forage consumption on the tract.	1.46. Implement a rest-rotation grazing system on allotment 0507, and reduce authorized use based on new range survey and suitability deductions.	1.46. None. Reduced livestock use as a result of the range survey will benefit wildlife.

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	WL 1.47. Exclude livestock on the identified tracts by fencing.	1.47. Competition for forage between elk and livestock on these elk winter ranges.	1.47. Maintain the Fox Gulch and Warm Springs allotments unleased. Discontinue the lease on Big Hole grazing allotment. Do not allow salting or water development on BLM lands. Consider fencing only if significant problems occur.	1.47. 34 AUMs allocated to wildlife. Cattle use suspended.
	WL 1.48. Allocate all forage to elk and exclude livestock by fencing.	1.48. The area receives considerable spring, summer and fall elk use. Calving is believed significant. Livestock use creates avoidance reaction and forage conflicts.	1.48. Exclude grazing on the N½ and N½SE¼, Section 17, in allotment 0069 by fencing the west side. Discourage livestock grazing in the other identified tracts. Reduce authorized use on allotment 0705 by 19 AUMs. Lease allotment 0106 at 51 AUMs.	1.48. 19 AUMs directly allocated to wildlife on allotment 0705, and livestock are excluded on 400 acres of allotment 0069.
	WL 1.49. Allocate all forage on allotment 0721 to summering elk.	1.49. Livestock and elk use conflict because of competition for forage and avoidance reaction by elk to livestock.	1.49. Allocate all forage (22 AUMs) on allotment 0721 to wildlife, and exclude livestock.	1.49. 22 AUMs allocated to elk and livestock excluded.
	WL 1.50. Elk forage needs should be given priority in terms of AUM allocation on isolated tracts known to sustain elk use. Exclude livestock on allotment 0724.	1.50. Range condition is poor, and there is no water on 120 acres of allotment 0724. Elk use this area and other small, isolated tracts. Landownership, fencing, etc., make management of these tracts difficult.	1.50. Discontinue the lease on allotment 0724. Do not allow salting or water development. Elk forage needs will be given first priority in terms of AUM allocations on small, isolated tracts known to sustain elk use.	1.50. 11 AUMs allocated to elk and cattle use suspended. Elk given priority for future AUM allocations on these tracts.
	WL 1.38. Consider public lands adjacent to the Blacktail Game Range for ACEC designation.	1.38. This area provides winter forage for 1,000 elk. Large sums of money were expended by state and federal agencies to purchase the adjoining Blacktail Game Range for the sole purpose of providing elk habitat. Winter habitat is considered crucial in the area. Elk calving intensity is high.	1.38. Consider public lands in the East Fork of Blacktail Deer Creek for ACEC designation pending publication of final ACEC regulations.	1.38. None.

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	WL 5.5. Change the early season grazing to 6/15 turn-out to provide undisturbed elk calving habitat on the identified tract. Also analyze early season disturbance of elk by humans and livestock on the identified tracts.	5.5. Cow elk characteristically calve around 6/1. Since elk will not tolerate livestock presence, they will move to less desirable habitat, and this could result in higher calf mortality.	5.5. Evaluate the impact of early livestock turn-out (prior to 6/15) on elk calving behavior in allotments 0734,0152,0154,0708,0475, 0526, and 0468. If biological evaluations document significant disruptions of elk calving behavior, defer stock use on key pastures to 6/15.	5.5. No trade-offs present. If grazing is deferred until 6/15, grazing systems will need to be modified.
	WL 7.1. Manage the identified tracts for wildlife habitat by including them with adjacent intensive management allotments, excluding livestock, or applying seasonal and number restrictions to benefit wildlife.	7.1. None of these tracts contains crucial wildlife habitat, but they do provide some wildlife habitat. No specific conflicts were identified. Consolidation of tracts would benefit range management in many cases.	7.1. Retain all of the identified tracts unless tracts of higher wildlife value can be acquired through exchange. Manage the tracts for wildlife habitat where possible by including them with adjacent intensive management areas, excluding livestock, or applying seasonal and number restrictions on livestock.	7.1. None.
	WL 7.2. Alter the existing fence so as to include this tract in allotment 0032, and interseed with yellow sweet clover and alfalfa.	7.2. A major sage grouse strutting ground adjoins this area. Grouse and antelope use is significant, and habitat conditions are grossly inadequate because of livestock use.	7.2. These recommendations will be addressed on a case-by-case basis in activity planning, with input from the affected range operator. Conflicts will be resolved on the ground.	7.2. None.
	WL 7.3. If stream conditions become unsatisfactory, alter existing fences to include this tract within allotment 0018/0036.	7.3. No conflict is known to exist, but stream stability must be maintained to retain this minor cutthroat trout fishery. Livestock overuse of riparian habitat and streambank trampling could adversely affect this fishery.	7.3. Same as 7.2.	7.3. None.
	WL 7.4. Construct protective fencing and exclude livestock except as needed for maintenance of desirable wildlife cover on this 20-acre tract.	7.4. Livestock use is excessive, leaving no residual herbaceous cover for nesting waterfowl and nongame species of wildlife.	7.4. Same as 7.2.	7.4. None.

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	WL 7.5. Change existing fences to include this tract within allotment 0030.	7.5. Livestock utilization is sometimes too heavy on this meadow habitat. This results in poor summer-fall habitat for grouse and antelope and in poor nesting habitat for marsh hawk and short-eared owl.	7.5. Same as 7.2.	7.5. None.
	WL 7.6. If habitat conditions are not maintained on Trail Creek, protective fencing to exclude livestock must be constructed.	7.6. Trail Creek and Bear Creek (which is a tributary) are Class V fisheries. Sedimentation resulting from improper management would seriously degrade this cutthroat and brook trout fishery.	7.6. Same as 7.2.	7.6. None.
	WL-7.7. Include non-AMP allotments within adjacent AMPs to assure that wildlife values are protected.	7.7. Significant wildlife values occur on non-AMP allotments. These tracts are not now actively managed and are often misused by livestock. AMP allotments are intensively managed, and wildlife values are protected.	7.7. Same as 7.2.	7.7. None.
	WL 7.8. Manage the Steamboat Rock non-AMP allotment as follows: Winter grazing only (11/1-3/30) in the Moonshine pasture; graze the Cook's Lake pasture under a three-treatment (early, late, rest) schedule, and allow no water development.	7.8. Habitat condition in the Moonshine pasture is less than desirable because of livestock use. Sage grouse and antelope use this pasture. Maintenance of habitat condition on the Cook's Lake pasture will maintain present deer, elk, and blue grouse habitat.	7.8. Same as 7.2.	7.8. None.
	WL 7.9. Include these non-AMP allotments within allotment 0469.	7.9. This area is in poor range condition, and highly erodible. It contributes significant sediment to the Ruby River.	7.9. Same as 7.2.	7.9. None.
	WL 7.11. Exclude livestock grazing on the identified tracts.	7.11. If livestock were excluded, high quality moose, fish, furbearers, and waterfowl habitat would be provided.	7.11. Same as 7.2.	7.11. None.

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	WL 7.12. Include the Dry Creek non-AMP with AMP allotment 0104 to maximize moose and elk habitat.	7.12. Livestock use is now essentially unmanaged on the tract. If Dry Creek were included with allotment 0104, wildlife habitat would be improved as a result of livestock management.	7.12. Same as 7.2.	7.12. None.
	WL 7.13. Exclude livestock in order to optimize wildlife habitat values on this tract.	7.13. High value cutthroat fishery, deer summer habitat, waterfowl and raptor breeding, and incidental bald eagle use of this tract are of concern. Livestock use is detrimental to wildlife habitat on the tract.	7.13. Same as 7.2.	7.13. None.
	WL 7.14. Exclude livestock on allotment 0178.	7.14. Livestock use is contributing to sedimentation of the Long Creek fishery. The area has good potential for reestablishment of bighorn sheep. Bighorn do not compete well with livestock.	7.14. Same as 7.2.	7.14. None.
	WL 7.15. Apply season and number restrictions on the identified non-AMP allotments.	7.15. Management that allows annual growing season use by livestock will degrade wildlife habitat values.	7.15. Same as 7.2.	7.15. None.
	WL 7.16. Include the identified area within the Axolotl Lakes proposed livestock exclusion by moving the fence in the NW¼, Sec. 8, T7S, R2W., to the north side of the road.	7.16. Livestock use is extreme on this tract, which contains two large pothole lakes. These lakes are valuable for waterfowl, amphibians, furbearers, and nongame birds.	7.16. Same as 7.2.	7.16. None.
	WL 8.1. Implement grazing systems on riparian habitats which include only one "hot season" (7/1-9/1) treatment in three years. Salting should be at least 1/2 mile from streams. Where grazing	8.1. Livestock commonly concentrate on riparian areas. This results in trampling, soil compaction, and overgrazing. Riparian woody growth is generally critical to streambank stability and	8.1. Initiate grazing systems that authorize hot season use (7/1-8/30) in only one year out of three in the 34 identified allotments. Initiate grazing systems that are keyed to	8.1. Wildlife proposals were fully accepted on 30% of the existing and proposed AMPs. The riparian areas on the remaining AMPs possibly will not meet desired wildlife habitat conditions. Evalua-

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	systems will not meet wildlife objectives, livestock must be excluded and alternate water sources developed.	moderation of seasonal water temperature. The riparian habitat supports a variety of game and nongame wildlife species. The hot season is considered to be the poorest time to graze riparian vegetation.	objectives other than riparian habitat needs in another 35 identified allotments. All of the systems that appear to be in conflict with riparian habitat needs will be reevaluated after at least one grazing cycle. Any needed adjustments will be based upon such field investigations.	tion of proposed management systems will be needed to determine impacts.
	WL 8.2. Authorize no livestock use on these riparian habitats.	8.2. These tracts contain riparian areas with exceptional wildlife values. These areas are vulnerable to excessive livestock use because of size, distribution, and steep topography.	8.2. Construct protective fencing around Sweetwater Spring in allotment 0471. Exclude livestock grazing from the riparian zone of allotment 0339 through protective fencing. Defer grazing use on Mill Gulch Creek until 8/15 annually. Graze the Horse Creek pasture of allotment 0531-0532 from 6/15-7/20 (year 1), 7/20-8/24 (year 2), and rest during year 3.	8.2. Twelve AUMs allocated to wildlife on allotment 0339. Grazing will be excluded on 5 acres of allotment 0471.
	WL 8.4. Limit hot season grazing within the Timber Butte and Sand Creek pastures of allotment 0040. Change the grazing formula to 8/1-9/20.	8.4. The channel of Price Creek is very susceptible to erosion and detachment. Maintenance of woody riparian vegetation is necessary to stabilize streambanks.	8.4. Retain the existing 7/1-8/20 early grazing treatment in the Timber Butte and Sand Creek pastures of allotment 0040.	8.4. Streambank stability may not be improved over existing conditions, as the existing grazing system will be maintained.
	WL 9.2. Maintain all available forage on this tract for use by wintering elk and bighorn sheep. Fencing is necessary.	9.2. Bighorn and elk compete with livestock for forage on this area. The west half of the tract is intensively utilized by cattle, which removes wildlife winter forage.	9.2. Manage primarily for the benefit of wildlife. No salting or water development will be allowed. Exclude livestock if practical.	9.2. A total of 75 AUMs allocated to wildlife. Livestock will be excluded.
	WL 9.4. Reserve all forage for use by bighorn sheep, mountain goat, and other wildlife species.	9.4. No conflicts exist, as no bighorn sheep or mountain goats inhabit the area.	9.4. Reject recommendation WL 9.4.	9.4. None.

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	WL 9.5. Reintroduce Rocky Mountain bighorn sheep into areas with suitable sheep habitat where they historically occurred. No new fencing of an extensive nature should be allowed. Maintain cattle as the only class of permitted livestock. Authorize no increases in livestock forage until bighorn use patterns and forage needs are established.	9.5. Livestock and bighorn compete for forage. Fences needed to control livestock are detrimental to wildlife movement. Domestic sheep are host to many diseases that are communicable to bighorn.	9.5. Initiate cooperative evaluations with Montana Department of Fish, Wildlife, and Parks, and introduce bighorn into Blacktail Ridge, McCartney Mountain and Big Ridge if introduction is deemed biologically practical. Work with Montana FWP and the USFS to attain successful reestablishment of bighorn in the Dixon Mountain-Sheep Creek area.	9.5. No conflicts are anticipated in the Dixon Mountain-Sheep Creek area, as most of the area is unsuitable for livestock grazing.
	WL 10.3. Authorize no livestock grazing on grizzly and northern Rocky Mountain wolf habitats.	10.3. The grizzly is a threatened species and the wolf is endangered. Livestock use on these habitats increases the possibility of grizzly or wolf being killed in response to depredation on livestock.	10.3. Threatened and endangered species will receive priority consideration. Livestock may be authorized to graze, but at their own risk.	10.3. Potential loss of livestock to predators.
	WL 10.5. Revoke the SEA withdrawal. Exclude livestock use and close roads. Manage as roadless area.	10.5. This area is believed to have a high potential for grizzly use because of abundant forb growth. The BLM does not have administrative control of this area. Experimental sheep grazing and associated predator control could result in the killing of grizzly or wolf. Revocation of the withdrawal would consolidate BLM ownership in the area.	10.5. Review the SEA withdrawal under the mandates of FLPMA (Sec. 204). If the withdrawal is not revoked after review, consummate an agreement with SEA on management of the withdrawn area. In the interim, modify the present cooperative agreement with SEA to specifically identify overall management responsibilities and direction.	10.5. None.
	WL 10.6. Allow selective aerial predator control as the only means of predator control between the town of Lima, Montana and Bloody Dick Creek.	10.6. Steel traps and poisoning for predator control could result in the death of a wolf. The Rocky Mountain wolf is believed to inhabit this area.	10.6. If this area or any portion of it is shown to be occupied by wolf and determined to be essential habitat the following shall apply: (1) The preferred predator control program where coyote control is needed will be aerial gunning by the U. S.	10.6. If essential wolf habitat does not exist, no tradeoffs will occur. If it is found to be essential habitat, predator control (coyote) will be less effective than the current practices. Control expenses and livestock losses both could increase.

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			Fish and Wildlife Service (USF&WS). (2) Control by the Montana Department of Livestock will be only when and where the USF&WS does not have the capability to meet responsible predator control needs. Private aerial gunners authorized by the state must submit to a BLM-Montana FWP orientation program in wolf identification before conducting coyote control on wolf habitat. (3) The BLM will attempt to work with fur trappers in the area in cooperation with Montana FWP. Selective trapping with special types and sizes of traps and snares will be encouraged. If this is unsuccessful, the BLM will seek legal means of restricting trapping activity.	
	WL 10.13. Exclude livestock grazing to optimize prey base species nesting habitat.	10.13. By excluding grazing, passerine and shorebird species populations would increase. In turn, the peregrine falcon would benefit.	10.13. Optimize prey base for peregrine falcons through implementation of grazing systems, periodic livestock exclusion, or total exclusion. See WL 11.1.	10.13. See WL 11.1.
	WL 11.1. Improve waterfowl habitation in the identified areas.	11.1. Livestock grazing removes vegetation needed for waterfowl nesting habitat. The identified areas are known nesting areas.	11.1. Accept WL 11.1 and accomplish this by (1) maintaining public lands adjacent to Price Land bridge unleased for grazing purposes, (2) either totally or periodically excluding livestock grazing on portions of public land on allotments 0738 and 0040, (3) initiating intensive livestock management with systems designed to provide residual vegetation on portions of allotments 0735 and 0179,	11.1. A total of 8 AUMs allocated to wildlife on allotment 0410, and 14 AUMs on allotment 0738.

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			and (4) retaining the two 40-acre tracts near Ennis Lake in unleased status, and eliminating grazing on the western portion of allotment 0410 until range condition improves from poor to good.	
	WL 11.2. Exclude grazing on waterfowl nesting habitats. Livestock grazing and/or burning may be used periodically to manipulate vegetation.	11.2. Same as WL 11.1.	11.2. Same as WL 11.1.	11.2. Same as WL 11.1.
	WL 11.3. Intensively manage livestock grazing so as to provide for standing residual vegetation a minimum of 2 out of 3 years, or about 66% of the allotment annually.	11.3. Same as WL 11.1.	11.3. Same as WL 11.1.	11.3. Same as WL 11.1.
	WL 12.2. Implement grazing systems described in WL 11.3 to provide optimal nesting habitat for marsh dependent nongame wildlife species.	12.2. Livestock grazing removes vegetative cover, which most nongame bird species need for nesting habitat. Wet meadow and marsh types are preferred wildlife sites.	12.2. Intensively manage livestock to provide for nongame and waterfowl nesting habitat within wet meadows and marsh by (1) allowing only moderate utilization by livestock to provide residual nesting cover, (2) removing livestock early enough so that regrowth will provide nesting cover, and/or (3) excluding livestock in some cases either totally or periodically.	12.2. Tradeoffs are not determinable at this time.
	WL 12.4. Optimize nesting habitat for nongame bird species in wet meadow and marsh habitat types by excluding grazing as a routine practice.	12.4. Same as WL 12.2.	12.4. Same as WL 12.2.	12.4. Same as WL 12.2.
	WL 12.6. Fence and protect small (10 acres or less) isolated springs, meadows and aspen tracts that are situated on dry sagebrush sites to benefit wildlife.	12.6. Many classes of nongame wildlife depend on this type of site. Livestock generally make heavy use of this type, and that use degrades wildlife habitat.	12.6. Modify WL 12.6--Fence and protect small isolated springs, meadows, and aspen tracts, and provide livestock water outside of fenced exclosures.	12.6. Livestock grazing will be excluded on small areas. Forage reductions to livestock will be slight. Water development costs will be increased.

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	WL 12.7. Designate high density ferruginous hawk nesting areas as ACECs. Authorize no livestock use from 3/1 to 5/15 annually.	12.7. Disturbance activities are known to cause ferruginous hawks to abandon their nests during the crucial egg incubation period. Livestock use and administrative activities may cause abandonment.	12.7. Upon finalization of ACEC regulations, this area will be evaluated for ACEC designation. All proposed activities will be reviewed on a case-by-case basis to ensure that nesting sites are disturbance-free during the nesting period.	12.7. None.
	WL 12.8. Authorize live trapping and removal of golden eagles from public lands only where necropsy results from the previous year documented lamb losses of 10% (10% of carcasses necropsied) or more. At least 50 lambs should be gathered for necropsy purposes, if practical.	12.8. Eagles have been associated with lamb losses on two areas in the resource area in past years. Extensive eagle removal has not appreciably influenced lamb production. Effectiveness of live trapping is questionable. Losses of lambs to eagles are unknown.	12.8. Eagle trapping may be authorized on an annual basis. Decisions to trap will be based on eagle density, rodent populations, and climatic conditions, on an annual basis.	12.8. None.
	WL 15.3, 15.4. Designate the Sage Creek and Badger Gulch-Reservoir Creek antelope and sage grouse winter and breeding habitats as ACECs. Maintain cattle as the only class of livestock. Maintain the bottom wire on fences a minimum of 18 inches from the ground. Authorize sagebrush control only where soil stability problems exist and when grazing systems designed to stabilize soils have failed.	15.3, 15.4. Livestock grazing, especially domestic sheep grazing, can create forage competition with antelope. Range condition is poor and wildlife habitat is in less than desirable condition. At least 6 major grouse strutting grounds exist on the area, and approximately 2,500 antelope utilize the area. Sagebrush control would remove sagebrush which is very important to both antelope and grouse.	15.3, 15.4. Consider this area for ACEC designation upon publication of final ACEC regulations. Accept remainder of recommendation.	15.3, 15.4. Increased forage production resulting from sagebrush control will be forgone.
	WL 16.2. Complete a habitat management plan for Sheep Creek and critical portions of Muddy Creek, giving priority to preservation of 5.6 miles of stream habitat in satisfactory condition and improvement of 5.9 miles of stream habitat in unsatisfactory condition.	16.2. Overgrazing has severely impacted the riparian vegetation and is contributing to increased sediment loads of both creeks.	16.2. Accept recommendation.	16.2. Undeterminable at this time.

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	WL 16.3. Rigidly restrict livestock management on this 2-mile stretch of Sheep Creek to a system or systems that will maintain excellent riparian vegetation condition.	16.3. Same as WL 16.2.	16.3. Allow winter grazing only on this portion of Big Sheep Creek within the Dixon Mountain allotment (0022).	16.3. Undeterminable at present.
	WL 16.6. Implement livestock grazing systems in the Sheep Creek watershed that are designed to increase vegetative densities and improve the water holding capacities.	16.6. Much of the Sheep Creek watershed is in poor condition as a result of poor stock grazing practices.	16.6. Accept recommendation.	16.6. None.
	WL 17.1. Meet Montana water quality criteria on all perennial flow streams by 1983, in order to optimize on-site and off-site sport fish production. (See recommendation WL 17.1 for further criteria.)	17.1. Sedimentation and contamination of streams will continue to degrade fisheries unless water quality is maintained or improved.	17.1. Accept recommendation.	17.1. Undeterminable at this time.
	WL 17.9. Exclude livestock from the identified streams, using protective fencing if necessary.	17.9. These streams are highly vulnerable to stock use and probably cannot be properly managed with routine grazing practices.	17.9. Where these recommendations have been identified on existing AMPs and custodial allotments, a significant and intensive management change will be necessary. And where these recommendations have been identified within a proposed AMP, implementation of the multidisciplinary plan will occur with appropriate assessment and monitoring for trends. On streams located on public land currently classified as custodial allotments, construct fences to either manage or eliminate livestock grazing.	17.9. Undeterminable at this time.

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	WL 22.1. Assure the availability of quality herbaceous cover in moist meadows and sagebrush swales for sage grouse and antelope.	22.1. This recommendation applies to 106 allotments in the Dillon Resource Area. Livestock utilization of wet meadow types is heavy. These sites are key antelope and and sage grouse habitat.	22.1. Assure the availability of quality herbaceous cover and forage for antelope, grouse, and other wildlife species within moist meadows and sagebrush swales by (1) developing alternate water sources where feasible and appropriate for the betterment of range and wildlife, (2) implementing grazing systems designed to improve overall range and watershed conditions, (3) fencing selected mesic and spring areas (see WL 12.3 and WL 12.6 decisions) or reducing the level of stocking, and (4) where it does not conflict with big game winter range and where it is possible considering snow conditions, graze a pasture during the winter and not the summer for the betterment of forb availability for sage grouse and antelope.	22.1. Undeterminable at this time. Some livestock forage will not be available as a result of this management direction.
	WL 22.2. Adjust livestock stocking rates according to University of Montana survey findings on mule deer and elk spring-summer use areas.	22.2. Deer and elk forage needs are important considerations that must be taken into account in the proposed grazing plans. Heavy spring use by livestock is of concern.	22.2. On the identified allotments, authorize livestock grazing at levels consistent with capacities indicated by the most recent range survey data. When grazing systems are fully implemented, pasture level stocking will be applied where range condition exceeds 40% in the fair and poor ecological condition classes. Any additional allocation of AUMs to livestock is based on multidisciplinary reviews and range condition and trend studies.	22.2. Unmeasurable at present.

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	WL 22.3. Reduce stock use on the following allotments in order to reduce livestock competition with sage grouse, antelope, and nongame species for food and cover, through a reservation of forage.	22.3. Heavy stock use in these areas is detrimental to these species. Reduced vegetation results in reduced insect populations; thus, there is less food (insects and forbs) for young grouse. Forbs are also important antelope forage.	22.3. Implement the proposed AMPs and institute management actions as necessary to ensure livestock utilization does not exceed 50% on moist sites throughout allotments 0102, 0033, 0753, and 0485.	22.3. Livestock forage utilization will be restricted on these sites.
	WL 25.1. Because it has high value as moose winter habitat, fence the entire 40 acres to prohibit livestock grazing.	25.1. This land has been unleased heretofore, and it is therefore not obligated to livestock grazing.	25.1. Accept recommendation.	25.1. None.
	Watershed			
	W 1.5,1.7. Discourage livestock use of riparian zones to reduce active streambank erosion, high suspended sediment concentrations, and occasional high fecal coliform concentrations.	1.5,1.7. Either more intensive livestock management or fencing will be necessary on the identified areas in order to curb this problem.	1.5,1.7. Where problems (W 1.5) have been identified on existing activity plans, and the present prescribed management systems have not achieved streambank stabilization, significant and intensive management changes will be necessary. Allotments 0019 and 0040 management systems shall be modified as recommended. Where problems (W 1.7 and/or W 1.5) occur within proposed activity plans, and where some undocumented activity plans exist, implement the multidisciplinary acceptable plan and allow an appropriate assessment period for trends.	1.5,1.7. On the affected activity plans, changes will have to be scheduled in grazing, AUMs will have to be greatly reduced, and the physical access of livestock will have to be controlled. Actual livestock use will be reduced by 184 AUMs on allotments 0007 and 0015, and licensed use will be reduced by 173 AUMs on allotments 0031 and 0471.
	W 1.6. Carefully manage the subject 40-acre tract in Sec. 3, T2S, R16W, in order to reduce its sediment contribution to the North Fork of the Big Hole River.	1.6. None. Case file shows sedimentation is not a problem, but due to wet ground conditions and location, management must be careful not to create a sedimentation problem.	1.6. Continue present management of this parcel as licensed and currently used.	1.6. None.
	W 1.8. The identified areas of active gully erosion require check dams, rock riprap, gabions, or grading and seeding as the primary means of control.	1.8. In addition to the mechanical means of controlling this erosion, management must provide the means to vegetate the area around gullies.	1.8. Accept W 1.8.	1.8. None.

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	W 1.12. Protect the public water supplies for the 12 listed communities. Livestock will not be allowed access, for grazing purposes, to Rattlesnake Creek, Indian Creek, and their major tributaries above the respective public water supply intakes.	1.12. Water supplies within the Dillon Resource Area generally receive only primary treatment before entering distribution systems. Therefore, biological, physical, and/or chemical contamination are of concern.	1.12. Protection of municipal water supplies will be of prime importance to all activities and must be coordinated through watershed personnel. All motorized vehicles will be restricted to maintained roads above or in the immediate vicinities of intakes and springs. Pesticides and herbicides are prohibited from all watersheds that are sources of municipal water. On watersheds where sampling has determined that water quality is below standard, all permitted activities will be terminated until the condition is corrected.	1.12. Undeterminable at the present time.
	W 4.0. (1.11,4.1,4.2,4.6) Reduce eroded condition by a minimum of one erosion condition class (ECC) on 1,417,000 acres by 1993.	4.0. An allocation of vegetation to watershed on these areas of accelerated and geologic erosion is needed to increase ground cover and plant density necessary to reduce erosion.	4.0. Allocate all vegetation on areas of severe ECC to watershed. On critical ECC, use moderate grazing in areas where Soil Surface Factors (SSFs) are 61 to 70 and light grazing in areas where SSFs are 71 to 80. Place salt blocks and water development sites on soil not in critical or severe ECC. No surface disturbance will be allowed on critical and severe ECC areas unless it is totally mitigable. No off-road travel will be permitted during wet periods.	4.0. In areas where critical or severe conditions exist, grazing will have to be more effectively managed, reduced, or eliminated. AUM reductions for watershed in the MFP process total 633.
	W 4.7. Allow ungulate grazing only on areas that have SSFs of less than 61.	4.7. Livestock grazing will be detrimental to soil stability.	4.7. Areas with SSFs greater than 70 will be considered unsuitable for grazing. Sites with SSFs of 61 to 70 will be considered for grazing provided these areas can be shown to have the potential to achieve an SSF of 61 or less	4.7. Undeterminable at this time. Reference 4.0 trade-offs.

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			within 4 grazing cycles, or 10 years, whichever is sooner.	
	W 6.1. Defer spring grazing on all watersheds subject to compaction until soil moisture conditions are such that the compaction hazard is minimal.	6.1. Soils subject to severe compaction hazard can become compacted and remain compacted even with management systems implemented.	6.1. When soil moisture is high, restrict grazing in pastures where more than 25% of the soil is subject to severe compaction hazard, and in those where more than 50% of the soil is subject to severe and/or moderate compaction hazard.	6.1. Undeterminable at this time.
	W 6.5. Allow the placement of salt blocks only on soils that are not susceptible to moderate or severe compaction.	6.5. The concentration of ungulates on soils susceptible to compaction will have adverse effects on soils and vegetative growth of these areas.	6.5. Accept recommendation.	6.5. Livestock distribution will be changed.
	W 7.3. Perform sagebrush control on soils where moisture competition is in evidence.	7.3. A decrease in the amount of sagebrush on certain soils will enable desirable grasses and forbs to receive the available moisture. Conflicts with wildlife may occur.	7.3. Accept recommendation.	7.3. Undeterminable at present time. Some reduction in wildlife habitat may occur.
	W 7.4. Decrease allowable utilization to 50% on all watersheds where utilization is greater than 50%.	7.4. Overutilization of forage by grazing decreases residual ground cover and plant vigor, which, in turn, increases runoff and erosion and decreases soil organic content and fertility.	7.4. Carrying capacity will be determined initially from the range survey by use of a proper use factor and appropriate deductions for suitability and wildlife needs. Key areas will be monitored with watershed, range and wildlife studies. Adjustments will be made in the carrying capacity in response to study data and trend to achieve a desirable utilization level.	7.4. See W 4.0 trade-offs.
	W 7.5. Allocate all increases in ground cover on poor or fair range condition sites to watershed until there is at least 70% ground cover.	7.5. This recommendation conflicts directly with range recommendations RM 4.1,4.2,4.3 and 4.4, which allocate an increase in AUMs on the basis of current range surveys that provide condition and trend data.	7.5. Allocate all increases in vegetative biomass on poor and fair condition range to watershed until such time as studies show that additional forage can be allocated without adversely affecting watershed productivity.	7.5. See W 4.0 trade-offs.

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	Forest Products			
	FP 1.7. Evaluate browsing problems on the identified problem area to determine the damage agent (wildlife or livestock), and implement protective measures as needed.	1.7. Livestock and/or wildlife browsing of tree seedlings has prevented establishment of trees on identified area.	1.7. Accept recommendation.	1.7. Livestock and/or wildlife will be temporarily excluded from certain areas until forest growth is no longer susceptible to browsing damage.
	Recreation			
	R 1.5. Exclude grazing from a corridor a minimum of 1/8 mile to a maximum of 1/4 mile wide on each side of the Madison River from Quake Lake north to the Madison County line.	1.5. Overgrazing is causing adverse impacts on the riparian vegetation, water quality, and sediment loads. The greatest impact results from deterioration of visual quality by livestock grazing.	1.5. Maintain riparian habitat in good to excellent condition by either adjusting, discouraging, or eliminating grazing on these lands.	1.5. Undeterminable at present; however, some grazing reduction will probably be necessary in order to improve riparian habitat condition classes.
	R 2.3. Exclude grazing from a corridor a minimum of 1/8 mile to a maximum of 1/4 mile wide on each side of the Big Hole River from Pintlar Creek to the Beaverhead-Madison County line.	2.3. Same as R 1.5.	2.3. Same as R 1.5.	2.3. Same as R 1.5.
	R 2.9. Exclude grazing from the Ponderosa Campground (Secs. 9 and 10, T2S,R9W).	2.9. Livestock use of campgrounds creates a conflict with recreationists.	2.9. Accept recommendation.	2.9. Livestock will be excluded.
	R 3.4. Exclude livestock grazing in the Belle Custodial and in pastures 2 and 2a of the revised AMP for Axolotl Lakes.	3.4. Cattle have had a significant impact on the recreational resources in this area. Bank trampling and riparian vegetation grazing are occurring, thereby inflicting severe shoreline degradation.	3.4. Exclude grazing from part of pastures 2 and 2a around Blue Lake.	3.4. A total of 127 AUMs (65 wildlife and 62 watershed) were removed from livestock grazing. This will improve recreational opportunities in the area.
	R 5.3. Retain the unleased portions of the Ruby Mountains in a nongrazing status.	5.3. This area can provide important backcountry recreation opportunities and is now unleased. No conflicts exist.	5.3. Accept recommendation 5.3.	5.3. None.

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	R 5.4. Discontinue use on the stock driveway linking the Garden Creek (0479) and McHessor (0530) grazing allotments, and revegetate it with native vegetation.	5.4. Overgrazing and severe creek bottom degradation are the major conflicts, both of which have reduced the visual quality of the area.	5.4. Initiate an on-the-ground inspection of the stock driveway and mitigate, where possible, the existing damage through management, relocation, or elimination of livestock use if necessary.	5.4. Undeterminable at the present time.
	R 6.2. Exclude livestock grazing (via fencing) on public lands in a manner that prevents further resource damage to the following streams: Peet Creek, Price Creek, Hell Roaring Creek, Corral Creek, Tom Creek.	6.2. These streams are being severely affected by livestock grazing activities.	6.2. Allow grazing at a reduced rate, shorten schedule, or apply specified grazing treatments. Exclude grazing only if these measures do not solve the problem.	6.2. None identifiable at this time.
	R 6.7. Exclude grazing from the Tom Creek (0154-0701) and Davis (0737) custodial tracts and retain the Sheep Mountain tract in an unlicensed status.	6.7. Maintenance of scenic qualities is of primary concern.	6.7. Same as R 6.2.	6.7. Undeterminable at the present time.
	R 9.2. Designate the Big Sheep Creek Canyon Recreation Area as an Area of Critical Environmental Concern (ACEC).	9.2. Current livestock use and future recreation use will seriously affect resource/recreational values.	9.2. Consider the Big Sheep Creek Area for ACEC designation after final ACEC regulations have been published.	9.2. None at present.
	R 9.4. Withdraw from grazing the public lands along the upper, middle, and lower portions of Big Sheep Creek.	9.4. Livestock grazing apparently is affecting recreation values in the canyon. Significant recreation use (fishing-related) occurs in this area. Overgrazing is a common problem.	9.4. Retain custodial 0693, Rio Puerco, and Deadwood Gulch as unleased, and protect them from trespass grazing and excessive trail use. Fence tract C in Four Eyes Custodial for recreation and wildlife. Leave the remainder as now licensed. On the remaining allotments, implement the multidisciplinary acceptable plan and allow an appropriate assessment period for trends.	9.4. Livestock excluded on one area.

MFP Step 1 Recommendations for Range/Livestock	MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock	MFP Step 1 Conflicts and Multiple Use Considerations	MFP Step 3 Decision	Resource Trade-Offs
	R 10.2. Exclude livestock grazing from within a maximum of 400 feet on each side of East Fork Blacktail Deer Creek.	10.2. Livestock grazing along the creek is creating use conflicts with numerous recreationists.	10.2. The East Fork Custodial range management unit will remain unleased. Livestock grazing along the creek will be prohibited, as provided for in the Robb Creek AMP (0167) by installation of the proposed drift fence.	10.2. None.
	R 12.2. Expand fishing opportunities by excluding livestock grazing on public lands within a corridor a maximum of 200 feet wide on each side of California, Ramshorn, Granite, Deep Creek, and Little Sheep Creek.	12.2. Livestock grazing impacts have been identified on the subject streams.	12.2. Do not fence California, Ramshorn, Granite, or Little Sheep creeks, but monitor effects during the first two cycles of the grazing systems. Exclusion will be initiated if there is not substantial improvement.	12.2. Undeterminable at this time.
	R 12.3. Exclude livestock grazing on public lands from within a 200-foot corridor on each side of Long Creek, and rehabilitate affected portions.	12.3. Severe overgrazing along the riparian zone of this stream has created significant impacts, especially on the grayling fishery.	12.3. Implement the proposed AMP and monitor for trends. Grazing exclusion may be considered if the condition does not improve.	12.3. None at present.
	R 13.3. Exclude livestock grazing from public lands in the SE¼SE¼, Sec. 12, T5S, R1W to enhance and expand waterfowl hunting opportunities at the Ennis Lake Slough.	13.3. Extreme grazing pressures have had a serious effect on the area, with a noticeable decline in productivity.	13.3. Accept this recommendation on the fenced western portion (16 acres) until range condition improves from poor to good. (See WL-11.1.)	13.3. Grazing will not be allowed until the range condition improves from poor to good on the western portion of the Jourdain custodial.
	R 20.1, 20.2, 20.3. Implement interim management guideline on the Humbug Spires, Beartrap, and Centennial Mountains Instant Wilderness Study Areas on a case-by-case basis, as well as on the proposed roadless areas.	20.1. Grazing and range improvements that would cause undue degradation of the land or that would impair wilderness suitability are prohibited in Wilderness Study Areas.	20.1. Accept these recommendations.	20.1. Undeterminable.
	21.1. Protect, enhance, and rehabilitate the visual resources of the Dillon Resource	21.1. Grazing could be affected, but this will be determined only on a case-by-case basis.	21.1. Modify the proposed Visual Resource Management (VRM) classes as depicted on	21.1. MFP Step 1 proposed VRM management classes were modified (generally reduced)

MFP Step 1 Recommendations for Range/Livestock	MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock	MFP Step 1 Conflicts and Multiple Use Considerations	MFP Step 3 Decision	Resource Trade-Offs
	Area in accordance with the established tentative "interim" management classes and management guidelines as depicted on overlays.		decision overlays B-MFP2-9 and MC-MFP2-9.	on some areas. Modifications were made to allow for development of various resource activities (i.e., forestry, minerals, and range).
RM 1.5				
Initiate range developments on the identified allotments.	WL 4.1. Fencing should be held to a minimum in order to provide big game with unrestricted daily and seasonal movements along the Madison River.	4.1. Significant deer migration occurs along the river. Fencing perpendicular to the river necessitates a great deal of crossing and contributes to entanglement, mortality, and predation.	4.1. Fencing along the Madison River will be held to a minimum in designated areas.	4.1. Fence types and locations may be less than desired for livestock management.
	WL 4.2. By 1983, alter all fences on public lands that are barriers or entanglement hazards to big game.	4.2. Approximately 260 miles of fence have been identified as hazards or barriers to wildlife movement. Net wire fences and improperly constructed barbed wire fences that are utilized to control livestock are detrimental to big game animals.	4.2. In areas where sheep are not grazed, perform fence alterations as recommended in WL 4.2. Where sheep are grazed, do alterations that will allow wildlife the freedom of movement to use formerly unavailable habitat (WL 15.2).	4.2. Alteration of fences will result in some increased cost to range users when calves slip under fences and mothers follow. On sheep allotments where net wire fences cannot be adequately altered to allow antelope movement, antelope movement will be restricted.
	WL 4.3. Remove the interior fence in allotment 0142 unless the fence is determined to be essential to the total grazing plan.	4.3. Extensive fencing exists on the allotment because of the small size of pastures. Big game entanglement and movement restrictions are of concern.	4.3. When fences are not really required for containing livestock, remove wildlife-obstructing stretches.	4.3. Obstructing fences will be modified where feasible. Wildlife movement will still be restricted.
	WL 15.2. Remove net wire barriers on this tract in order to expand antelope distribution by 6,000 acres.	15.2. Four antelope passes were constructed in 1976 to resolve the problem, but substantial antelope response has not occurred. Removal of net wire and installation of barbed wire on specified sections would allow antelope movement but would substantially reduce control of sheep.	15.2. Same as WL 4.2.	15.2. Sheep would probably have to be herded if the net wire were removed. Lambs would slip under the barbed wire and become orphaned.

MFP Step 1 Recommendations for Range/Livestock	MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock	MFP Step 1 Conflicts and Multiple Use Considerations	MFP Step 3 Decision	Resource Trade-Offs
	WL 6.1. Allow browse canopy and density to be determined by climatic and edaphic factors, consistent with good grazing management practices, rather than by periodic artificial treatments on sage grouse breeding and wintering habitats; mule deer open summer, fall and winter habitats; antelope fawning, fall and winter habitats; and elk calving habitats. These are areas where serious conflicts may be anticipated. Other areas should be evaluated on a case-by-case basis.	6.1. Sagebrush eradication/control can severely reduce habitat quantity and quality for various game and nongame species. Sagebrush control is desired by range to increase grass production on 63,902 acres.	6.1. Where browse species can be identified and determined crucial for wildlife species, control of browse through artificial means will be forgone.	6.1. Sagebrush control will be implemented on 9414 acres of noncrucial habitat. Potential increases in livestock forage production from proposed sagebrush control will be forgone on 54,488 acres.
	WL 6.2. Designate cattle as the only class of livestock authorized on key deer winter ranges that support mountain mahogany, in order to eliminate browse forage competition.	6.2. Browsing of Mountain mahogany by sheep can cause serious competition for winter browse with deer herds.	6.2. On crucial mountain mahogany winter habitats, cattle will be the main domestic grazing class, and the grazing of sheep on such habitats will be mitigated through specific grazing treatments or management practices designed to reduce and, in some cases, eliminate sheep use.	6.2. Possible future change of class of livestock required in problem areas.
	WL 7.10. Manage allotment 0609 for the benefit of sage grouse, deer and antelope. Implement a three-treatment grazing plan that keys in on important forb species. Do not control sagebrush, and stipulate cattle use only.	7.10. Substantial deer, antelope, and sage grouse use occurs on the tract. Range condition is depleted by livestock use.	7.10. Same as WL 6.1 and 6.2.	7.10. Same as WL 6.1 and 6.2.
	WL 12.1. Do not allow sagebrush control on public lands where Great Basin Sage occurs.	12.1. Many nongame wildlife species inhabit this sagebrush type. Control is desired to increase livestock forage.	12.1. Same as WL 6.1.	12.1. Same as WL 6.1.

MFP Step 1 Recommendations for Range/Livestock	MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock	MFP Step 1 Conflicts and Multiple Use Considerations	MFP Step 3 Decision	Resource Trade-Offs
	WL 9.6. Designate lands supporting bighorn sheep as ACECs. Allow no new fencing to cross heavy bighorn use areas. Maintain class of livestock as cattle only, and allow no new water developments in heavy bighorn use areas.	9.6. This tract contains the only bighorn sheep herd on BLM lands within the Dillon Resource Area. Bighorn and livestock compete for forage. Water developments could pull livestock into previously unused areas. New fence construction could create movement and entanglement problems.	9.6. Consider the Soap Gulch-Camp Creek and Maiden Rock areas for ACEC designation pending publication of final ACEC regulations.	9.6. None.
	Watershed			
	W 4.6. Allow the placement of salt blocks and water troughs only on soils that are not suffering from severe erosion.	4.6. The concentration of ungulates on such areas would severely impede progress, if any, towards reducing erosion.	4.6. Accept recommendation.	4.6. Livestock distribution will be restricted. This could concentrate livestock on other areas.
	Recreation			
	R 21.3. Range developments on public lands should use the following techniques to reduce visual impacts: (1) painting of tanks, fence posts, and wells to blend with existing landscape. Paint gray if steel, leave natural if wood. (2) Locating fence lines so as to avoid "skylining" wherever possible. (3) Burying pipelines and re-seeding the corridor to native vegetation. (4) Encouraging use of horses instead of automobiles by livestock operators to avoid the need for additional roads. (5) Using burning instead of chemical spraying for sagebrush control to create more natural effects in the landscape as well as removing dead sagebrush. (6) Placing salt	21.3. The proposed management techniques could impose some impacts on grazing practices.	21.3. Manage the resource area according to the management class ascribed to it, allowing activities identified in MFP-2 to occur so long as they are done in a manner consistent with the VRM management class.	21.3. Increased costs for range developments will result in some cases. Some developments may be dropped if VRM classes cannot be met.

MFP Step 1 Recommendations for Range/Livestock	MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock	MFP Step 1 Conflicts and Multiple Use Considerations	MFP Step 3 Decision	Resource Trade-Offs
	blocks away from watercourses and periodically rotating salting areas to minimize stream bank, soil, and vegetative damage.			
RM 1.8	Wildlife			
Remove wild horses from public lands.	WL 1.23, 1.39, R 13.6. Remove wild horses from all public lands and give elk priority in forage allocations.	WL 1.23, 1.39, R 13.6. Complementary recommendations.	WL 1.23, 1.39, R 13.6. Accept Range Recommendation RM 1.8.	WL 1.23, 1.39, R 13.6. AUMs that are available after horses are removed are not allocated at this time. Elk will benefit even though a direct allocation of these AUMs to elk was not made.
RM 9.1	Recreation			
Revoke stock driveway withdrawals on 26 identified allotments.	R 3.5. Revoke stock driveway in Axolotl Lakes area.	3.5. Complementary recommendations to reduce livestock damage in Axolotl area.	3.5. Initiate stock driveway withdrawal review in 1981. Increase supervision of use and compliance on stock driveways in interim.	3.5. None.
	Lands			
	L 7.1. Conduct a review of all stock driveway withdrawals.	7.1. Section 204 of Federal Land Policy and Management Act requirement.	7.1. Accept recommendation.	7.1. None.
	RM 9.1. General.	9.1. Stock driveways are a privilege and a valid use. Conflicts arise within range allotments when trailing occurs within rest pastures, or overuse of the forage resource occurs.	9.1. See R 3.5.	9.1. Conflicts within allotments will continue. Management systems will be disrupted unless alternate trails are utilized. Future forage allocations within an allotment may be reduced to compensate for forage consumed by trailing stock.

APPENDIX 21: DESCRIPTION OF TYPICAL EXISTING ALLOTMENT MANAGEMENT PLANS WITH RIPARIAN HABITATS

Allotment	Date Started	Stocking Rate	System and Grazing Treatment	Comments	Riparian Condition (miles)			
					Poor	Fair	Good	Excellent
Sweetwater 0471		High	(A) Winter (B) Rest (C) 5/20-8/4 (D) 8/15-10/19	One "hot season" treatment out of four years. Adequate system to maintain good riparian condition, but stocking rate too high.	0	5.25	6.35	0
Moose Creek 0303	1970	Moderate	(A) 5/21-7/4 (B) 11/1-11/30 (C) Rest	No "hot season" treatments. Good system.	0	0	2.75	0
Camp Creek 0308	1969	Light	(A) 5/21-6/23 (B) 6/24-8/15 (C) 8/16-10/3 (D) Rest	One "hot season" treatment. plus a portion of (C). Adequate system to maintain good riparian condition.	0	0	3.75	0
Dixon Mountain 0022	1974	Light	(A) 5/15-6/10 (B) 11/15-12/31 (C) Rest	Excellent system. No "hot season" use. Banks frozen in (B) treatment and temperature inversions move stock upslope.	0	0	3.00	0
Baldy Mountain 0037	1974	Moderate	(A) 5/10-7/1 (B) 7/1-10/15 (C) Rest	One "hot season" treatment in three years. Good system to improve riparian condition.	0	0	8.00	0
Clark Canyon 0002	1972	High	(A) 9/1-2/28 Annually	No "hot season" use. Fairly good system to maintain riparian condition.	0	0	1.57	0

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Allotment	Date Started	Stocking Rate	System and Grazing Treatment	Comments	Riparian Condition (miles)			
					Poor	Fair	Good	Excellent
Clark Canyon 0002	1972	High	(A) 8/15-9/30 (B) 7/26-8/31	Poor system. Two consecutive years of "hot season" use.	0	1.30	0	0
Muddy Creek 0039	1974	High	(A) 8/1-9/30 (B) Rest (C) 6/15-7/31	Poor system. Two "hot season" treatments in three	2.5	1.10	0	0
Red Mine 0034	1973	High	(A) Rest (B) 7/1-7/14 (C) 7/15-8/30 (D) 8/31-10/15	Poor system to attain improvement in unsatisfactory riparian habitat. Two "hot season" treatments in four years.	0	1.75	0	0

SOURCE: BLM, 1979.

APPENDIX 22:

RANCH BUSINESS ECONOMICS

The basic analytical tool used to analyze the economic impact of grazing adjustments on ranch income is the ranch budget.

The first step in the process involved matching each allotment in the EIS study area with the respective ranch operation. Some ranch operations have only one BLM grazing allotment, others have a number of allotments involving existing allotment management plans (AMPs) or proposed AMPs and non-AMPs.

There is a total of 268 individual ranch operations with BLM grazing privileges in the study area. Fifty-two of these 268 ranches have 24 or fewer BLM AUMs. The BLM AUMs are virtually unimportant to these ranches, so the analysis concentrates on the 216 remaining ranch operations.

Through the use of BLM grazing records and the personal knowledge of Dillon Resource Area BLM employees and the Beaverhead County Agent (Maki 1979), the size and type of each of the 216 ranches was estimated. This process revealed that over 90 percent of the operations are cow/calf operations, with many holding over a large percentage of calves to be sold as yearlings. A few operations raise sheep along with cattle. Virtually no cash crops are raised.

The total AUM grazing requirement for each ranch was computed by multiplying seven times the total number of animal units (AUs) in each ranch. Seven was used because it is estimated that, on the average, ranch operations in the study area graze seven months out of the year and feed hay and supplement the other five months. To determine the percentage of dependency of each operation on BLM grazing, the number of BLM AUMs leased was divided by the total grazing AUM requirements.

Percentage of dependency = 7 months x number
of AUs in ranch
BLM AUMs

The results of these calculations are shown in table 2-31.

The next step was to place the ranches into size categories. The 216 ranch operations best fit into four basic size categories; small commercial (1 to 199 brood cows), medium commercial (200 to 499 brood cows), large commercial (500 to 999 brood cows), and very large commercial (1,000 or more brood cows). Where sheep are involved in the operations, they were converted on the basis of five sheep equal one mature cow.

All ranches falling within a size category were averaged to determine the average size for each category. Results of this averaging indicated the following: small commercial, 130 brood cows; medium commercial, 325 brood cows; large commerical, 625 brood cows; and very large commercial, 2,000 brood cows.

A ranch budget was constructed for each of the four average size ranch operations. This was accomplished by drawing on information from several sources. One primary source was the budget of the U.S. Department of Agriculture, Economics, Statistics, and Cooperative Service Enterprise (ESCS 1979). Costs and returns were developed in 1977 for mountain ranches with BLM and Forest Service grazing. Dr. Kerry Gee of that agency subsequently updated this information to reflect 1978 price levels (Gee 1978). Data from ESCS were adjusted to reflect the specific situation regarding the representative average size ranches. This was accomplished by interviews with twenty ranch operators in the study area that are directly affected by BLM grazing adjustments, and through use of an enterprise costs study of a 200-cow/calf ranch in Madison County that was prepared by Jim Cornelius, Extension Economist, Montana State University.

Ten small commmercial ranch budgets were collected from the Dillon Farmers Home Administration. This information was also used as input into constructing the representative budgets. Cost and returns data of ESCS were also compared with information that can be calculated directly (e.g., property taxes). The budgets for the four representative average size ranches are shown on table AP22-1. The budget information was organized similarly to that presented by Douglas Agee in his article, "Rates of Return to Investment for Western Cattle Ranches" (Agee 1972). That is, net cash income was computed by subtracting cash operating expenses from gross receipts. Net ranch income or return to the operator and his family for labor and management and to invested capital was computed by subtracting depreciation (non-cash cost) from net cash income. Cost and returns are expressed in terms of annual amounts and reflect 1978 price levels.

Since livestock prices in 1978 were fairly high compared to previous years, income shown in the budgets is higher than if, for example, a five-year average had been used to calculate costs and returns. Conversely, livestock prices were higher in 1979 than in 1978, so if these prices were used, income would be even greater than that shown.

It is interesting to note that the net cash return varies from $104.15 per brood cow for small commercial operations to $155.49 for large commercial operations. This is based on an average intermediate and long-term indebtedness of approximately $500 per brood cow.

The next step in the process was to determine the impact of grazing adjustments on ranch income. The impact of adjustments in BLM grazing was estimated from information gathered from 20 ranchers in the study area. These ranchers represented a cross-section of the 137 ranchers with AUM reductions at the initial stocking level under the proposed action. Ranch operators were asked how they would adjust their ranch operation to compensate for reductions in their BLM grazing privileges. Generally, the small commercial ranchers indicated that they would purchase hay and maintain the size of their herds as long as the reduction in BLM grazing did not represent more than a 10 to 15 percent reduction in their total grazing requirement. Given the present price of livestock and the present small size of their operations, this is probably a predictable response.

The medium and large commercial operators generally indicated that for small reductions (up to 5 percent) in their total grazing, they would maintain herd size and purchase hay. For reductions greater than 5 percent they indicated that they would probably do a little of both, purchasing hay and reducing herd size.

Very large operators indicated that their most likely adjustment to reductions in BLM grazing would be to reduce herd size. They indicated that feeding hay longer in the spring on a large scale basis was not very practical.

To calculate the loss in income from reduction in BLM grazing, a partial ranch budget was developed (tables AP22-2 through AP22-5). The increased costs, reduced costs, and reduced returns were calculated for the adjustment of purchasing hay or reducing herd size or both. Under the hay purchase adjustments, increased costs include hay purchase, interest on operating capital, and reduced BLM grazing fees. Reduction in herd size affects receipts as well as a number of variable costs such as veterinary expenses and medicine. The net difference in increased costs, reduced costs, and reduced receipts is the amount of reduction in ranch income attributable to reduction in BLM grazing.

To assess the impact of BLM grazing increases on ranch income, BLM employees, the Beaverhead County Agent, and a few of the most knowledgeable ranchers were interviewed. These people were asked how ranch operators might utilize additional BLM AUMs. The general consensus was that, at least in the short term, BLM increased AUMs could probably be used best by holding more calves over to be sold as yearlings. Ranches in the area are usually in balance with respect to the feed base, and it is difficult, at least in the short term, to increase total brood cow numbers because of the problem of finding additional grazing and feed during the time the livestock are not using the additional BLM grazing. With yearlings, the ranch operator has a great deal more flexibility on how and when he might feed and graze the additional livestock and when he might sell them.

In the long term, ranch operators would have the option of increasing productivity on private land, converting cropland into grazing or hay land, etc., to provide the total feed and grazing required throughout the year. Since these alternatives would vary considerably, depending upon the individual situations, the analysis was restricted to considering only the alternative of holding more calves over to be sold as yearlings (see tables AP22-6 through AP22-9).

The impact on ranch income is measured only in terms of change in the number of BLM AUMs. It is acknowledged that where an AMP is involved, there may be changes in ranch costs and particularly in returns associated with the quality of grazing, watering facilities, etc., that do not directly relate to the change in quantity of AUMs. Through vegetation manipulation, fencing, water development, and rest-rotation grazing on BLM lands, a ranch operator could benefit from the production of heavier calves, an increase in the calf crop, and possibly even a reduction in death losses. Some of these benefits have been noted by W. Gordon Kearl (1973). It is entirely possible that a ranch operator, even though he reduces the size of his herd, may end up selling more pounds of beef in the fall because of the benefits from implementation of an AMP.

Not enough data are available at this time in the study area to conclusively quantify the extent of these additional ranch costs and returns, so they were not evaluated in the analysis.

To present an overall picture of the impact on ranch income for all ranches that are affected in the study area, ranches in the four size categories were stratified into four percentage reduction/increase categories: more than 0 to 0.9 percent, 1 to 4.9 percent, 5 to 9.9 percent, and 10 to 15 percent.

The percentage represents the change in total grazing (7 months) casued by change in BLM AUMs. This detailed breakdown was performed only for the proposed action at the intitial stocking level (tables 3-40 and 3-41). For the impact of the proposed action in the long term, an overall percentage reduction/increase was computed for ranches in each of the four size categories (tables 3-42 and 3-43). This overall average approach was also used for all the alternatives.

To calculate the impact on ranch income, the appropriate percentage of change in AUMs was traced through the appropriate representative ranch budget. It is interesting to note that for a reduction in one BLM AUM, ranch income is reduced from a low of $16.43 to a high of $17.47. For an increase in one BLM AUM, ranch income is increased from a low of $8.42 to a high of $10.31. This shows that it costs a ranch operator more to lose an AUM than is gained from an increase of an AUM. This appears to be a reasonable conclusion, since ranches are usually in balance with respect to the feed base, machinery, and buildings. A reduction in AUMs can cause a ranch to either substitute higher cost feed or, if the size is reduced, certain overhead costs must still be paid. An increase in an AUM accrues the marginal value that the AUM contributed to the ranch operation. This value should approximate the fair market value of an AUM. The fair market value for an AUM in 1978 in Montana was $7.40 (USDA, ESCS 1979). This is very close to the value arrived at through partial budgeting, and it tends to support the assumptions of the partial budgeting approach.

TABLE AP22-1

CURRENT ANNUAL COSTS AND RETURNS BY RANCH SIZE CATEGORY[a]

	Ranch Size Category			
	Small Commercial (130 brood cows)	Medium Commercial (325 brood cows)	Large Commercial (625 brood cows)	Very Large Commercial (2,000 brood cows)
Receipts				
Cows	$ 8,000	$ 19,600	$ 37,600	$120,000
Heifers (1-2 years)	2,695	6,525	13,475	92,400
Steers (1-2 years)	-0-	32,850	63,000	270,000
Bulls	1,980	4,975	7,920	27,720
Steer calves	18,270	22,995	44,100	63,000
Heifer calves	8,290	20,165	38,950	55,250
Total	$39,235	$107,110	$205,045	$628,370
Operating expenses				
Livestock purchases	$ 1,600	4,000	6,400	22,400
Hay purchases	2,700	7,600	14,550	50,500
Feed supplement purchases	352	1,760	3,360	14,400
Salt and minerals	180	510	960	3,120
BLM grazing fees	236	664	1,277	3,156
Forest Service grazing fees	517	1,459	2,803	6,688
State land grazing fee	247	695	1,337	3,302
Veterinary fees and medicine	615	975	1,875	6,000
Marketing and transportation	325	730	1,400	7,800
Hired labor	1,500	4,500	14,400	58,200
Taxes				
Land	475	1,330	2,560	11,500
Improvements	460	620	770	2,150
Personal property	1,515	2,700	4,400	14,700
Insurance	650	900	1,100	2,500
Repairs and maintenance				
Buildings and fences	1,500	1,350	2,100	6,600
Machinery and trucks	2,000	3,600	4,000	15,600
Fuel and oil	1,800	2,630	4,050	13,000
Fertilizer and seed	1,200	3,330	6,450	20,600
Utilities	800	1,000	1,200	3,000
Miscellaneous expenses and supplies	300	600	1,250	4,000
Interest				
Operating capital	875	1,840	3,500	12,100
Intermediate and long-term loans	5,850	14,625	28,125	90,000
Total	$25,697	$ 57,418	$107,867	$371,316
Net cash income[b]	$13,540	$ 49,690	$ 97,180	$257,050
Depreciation	7,200	8,400	13,000	39,000
Net return to operator--labor and capital	$ 6,340	$ 41,290	$ 84,180	$218,050

SOURCE: BLM, 1979.

[a] Costs and returns are based on 1978 price level according to U.S., Department of Agriculture, Crop Reporting Board.

[b] Figures are rounded to nearest $10.

TABLE AP22-2

REDUCED NET CASH INCOME FOR A 130-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Reduction[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Reduction--average number of AUMs	6	26	66	154
Increased costs[b]				
Hay purchase	$ 100	$ 450	$ 1,159	$ 2,659
Interest on operating capital	5	20	52	120
Total	$ 105	$ 470	$ 1,202	$ 2,779
Reduced costs				
Hay purchase				
Supplemental feed				
Salt and minerals				
BLM grazing fee	$ 9	$ 40	$ 100	$ 233
Veterinary and medicine				
Marketing and transportation				
Miscellaneous expenses				
Total	$ 9	$ 40	$ 100	$ 233
Reduced revenue				
Net increased cost[c]	$ 100	$ 430	$ 1,100	$ 2,550
Reduction per AUM[d]	$ 16.67	$ 16.54	$ 16.67	$ 16.56
Net cash income				
Before reduction	$13,540	$13,540	$13,540	$13,540
After reduction	13,440	13,110	12,440	10,990
Percentage of reduction[e]	0.07%	3.20%	8.10%	18.80%

SOURCE: BLM, 1979.

a. Percentage of reduction in ranch's total grazing (1,116 AUMs) due to reduction in BLM AUMs.

b. It is assumed that the loss in BLM AUMs would be compensated for by purchase of hay.

c. Figures have been rounded to the nearest $5.

d. Loss in net income due to loss of one BLM AUM, or value of an AUM to ranch enterprise.

e. Percentage of reduction in net cash income.

TABLE AP22-3

REDUCED NET CASH INCOME FOR A 325-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Reduction[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Reduction--average number of AUMs	21	71	203	426
Increased costs[b]				
Hay purchase	$ 362	$ 1,225	$ 1,740	$ 3,675
Interest on operating capital	15	55	5	8
Total	$ 377	$ 1,280	$ 1,745	$ 3,683
Reduced costs				
Hay purchase			$ 1,155	$ 2,550
Supplemental Feed			60	120
Salt & Minerals			16	35
BLM Grazing Fee	$ 32	$ 107	307	643
Veterinary and medicine			30	66
Marketing and transportation			23	50
Miscellaneous expenses			18	41
Total	$ 32	$ 107	$ 1,609	$ 3,505
Reduced revenue			$ 3,296	$ 7,250
Net increased cost[c]	$ 345	$ 1,173	$ 136	$ 178
Reduced net cash income[c]	$ 345	$ 1,175	$ 3,430	$ 7,430
Reduction per AUM[d]	$ 16.43	$ 16.55	$ 16.90	$ 17.44
Net cash income				
Before reduction	$46,690	$46,690	$46,690	$46,690
After Reduction	49,345	84,515	42,260	42,260
Percentage of reduction[e]	0.7	2.4	7.0	15.0

SOURCE: BLM, 1979.

a. Percentage of reduction in ranch's total grazing (3,145 AUMs) due to reduction in BLM AUMs.

b. It is assumed that the loss in BLM AUMs at the levels of reduction of more than 0 to 0.9 percent and 1.0 to 4.9 percent would be compensated for by the purchase of hay. At the levels of reduction of 5.0 to 9.9 percent and 10 to 15 percent, it is assumed that 50 percent of the reduction would be compensated for by the purchase of hay and 50 percent by reduction of herd size.

c. Figures have been rounded to the nearest $5.

d. Loss in net cash income due to loss of one BLM AUM, or value of AUM to ranch enterprise.

e. Percentage of reduction in net cash income.

TABLE AP22-4

REDUCED NET CASH INCOME FOR A 625-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Reduction[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Reduction--average number of AUMs	21	153	445	583
Increased costs[b]				
Hay purchase	$ 362	$ 2,639	$ 3,847	$ 5,034
Interest on operating capital	15	108	10	12
Total	$ 377	$ 2,747	$ 3,857	$ 5,046
Reduced costs				
Hay purchase			$ 2,635	$ 3,450
Supplemental Feed			120	168
Salt & Minerals			35	46
BLM Grazing Fee	$ 32	$ 231	672	880
Veterinary and medicine			69	90
Marketing and transportation			52	67
Miscellaneous expenses			46	60
Total	$ 32	$ 231	$ 3,629	$ 4,761
Reduced revenue			$ 7,545	$ 9,842
Net increased cost[c]	$ 345	$ 2,516	228	285
Reduced net cash income[c]	$ 345	$ 2,515	$ 7,775	$10,130
Reduction per AUM[d]	$ 16.43	$ 16.44	$ 17.47	$ 17.38
Net cash income				
Before reduction	$97,180	$97,180	$97,180	$97,180
After Reduction	96,835	94,665	89,405	87,050
Percentage of reduction[e]	0.4	2.6	8.0	10.4

SOURCE: BLM, 1979.

a. Percentage of reduction in ranch's total grazing (6,043 AUMs) due to reduction in BLM AUMs.

b. It is assumed that the loss in BLM AUMs at the levels of reduction of more than 0 to 0.9 percent and 1.0 to 4.9 percent would be compensated for by the purchase of hay. At the levels of reduction of 5.0 to 9.9 percent and 10 to 15 percent, it is assumed that 50 percent of the reduction would be compensated for by the purchase of hay and 50 percent by reduction of herd size.

c. Figures have been rounded to the nearest $5.

d. Loss in net cash income due to loss of one BLM AUM, or value of AUM to ranch enterprise.

e. Percentage of reduction in net cash income.

TABLE AP22-5

REDUCED NET CASH INCOME FOR A 2,000-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Reduction[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Reduction--average number of AUMs	67	454	904	0
Reduced costs[b]				
Interest on operating capital	$ 42	$ 306	$ 621	
Hay Purchase	720	5,345	10,900	
Supplemental Feed	48	312	624	
Salt & Minerals	9	67	136	
BLM Grazing Fee	101	686	1,365	
Veterinary and medicine	18	129	261	
Marketing and transportation	23	168	339	
Miscellaneous expenses	12	86	174	
Total	$ 973	$ 7,099	$ 14,420	
Reduced revenue	$ 1,884	$ 13,510	$ 27,334	
Reduced cost	$ 973	$ 7,099	$ 14,420	
Reduced net cash income[c]	$ 910	$ 4,610	$ 12,915	
Reduction per AUM[d]	$ 13.60	$ 14.12	$ 14.28	
Net cash income				
Before reduction	$257,050	$257,050	$257,050	
After Reduction	256,140	250,640	244,135	
Percentage of reduction[e]	0.4	2.5	5.0	

SOURCE: BLM, 1979.

a. Percentage of reduction in ranch's total grazing (20,900 AUMs) due to reduction in BLM AUMs.

b. It is assumed that the loss in BLM AUMs would be compensated for by purchase of hay.

c. Figures have been rounded to the nearest $5.

d. Loss in net cash income due to loss of one BLM AUM, or value of AUM to ranch enterprise.

e. Percentage of reduction in net cash income.

TABLE AP22-6

INCREASED NET CASH INCOME FOR A 130-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Increase[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Increase--average number of AUMs	6	21	74	0
Increased costs[b]				
Hay Purchase	$ 55	$ 193	$ 660	
Supplemental Feed	12	42	144	
BLM Grazing Fee	9	32	112	
Miscellaneous expenses	5	17	60	
Total	$ 81	$ 284	$ 976	
Increased revenue	$ 135	$ 473	1,620	
Increased cost	$ 81	$ 284	$ 976	
Increased net cash income[c]	$ 55	$ 190	$ 645	
Increase per AUM[d]	$ 9.00	$ 9.05	$ 8.71	
Net cash income				
Before increase	$13,540	$13,540	$13,540	
After increase	13,595	13,635	14,185	
Percentage of increase[e]	0.4	1.4	4.8	

SOURCE: BLM, 1979.

a. Percentage of increase in total ranch grazing (7 months) due to increase in BLM AUMs.

b. It is assumed that the operator would take advantage of increase in AUMs by holding over calves to be sold as yearlings.

c. Figures have been rounded to the nearest $5.

d. The extent to which cash income is increased by an increase of one AUM, or value of one more AUM to ranch enterprise.

e. Percentage of increase in net cash income with increased AUMs.

TABLE AP22-7

INCREASED NET CASH INCOME FOR A 325-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Increase[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Increase--average number of AUMs	16	82	188	334
Increased costs[b]				
Hay Purchase	$ 165	$ 770	$ 1,705	$ 3,080
Supplemental Feed	36	168	372	672
BLM Grazing Fee	24	124	284	504
Miscellaneous expenses	15	70	155	280
Total	$ 240	$ 1,132	$ 2,516	$ 4,536
Increased revenue	$ 405	$ 1,890	$ 4,185	$ 7,556
Increased cost	$ 240	$ 1,132	$ 2,518	$ 4,536
Increased net cash income[c]	$ 165	$ 760	$ 1,670	$ 3,020
Increase per AUM[d]	$ 10.31	$ 9.27	$ 8.88	$ 9.06
Net cash income				
Before increase	$49,690	$49,690	$49,690	$49,690
After increase	49,885	50,450	51,360	52,715
Percentage of increase[e]	0.3	1.5	3.4	6.1

SOURCE: BLM, 1979.

a. Percentage of increase in total ranch grazing (7 months) due to increase in BLM AUMs.

b. It is assumed that the operator would take advantage of increase in AUMs by holding over calves to be sold as yearlings.

c. Figures have been rounded to the nearest $5.

d. The extent to which cash income is increased by an increase of one AUM, or value of one more AUM to ranch enterprise.

e. Percentage of increase in net cash income with increased AUMs.

TABLE AP22-8

INCREASED NET CASH INCOME FOR A 625-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Increase[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Increase--average number of AUMs	19	148	0	0
Increased costs[b]				
Hay Purchase	$ 165	$ 1,375		
Supplemental Feed	36	300		
BLM Grazing Fee	29	223		
Miscellaneous expenses	15	125		
Total	$ 245	$ 2,023		
Increased revenue	$ 405	$ 3,375		
Increased cost	$ 245	$ 2,023		
Increased net cash income[c]	$ 160	$ 1,350		
Increase per AUM[d]	$ 8.42	$ 9.12		
Net cash income				
Before increase	$97,180	$97,180		
After increase	97,020	98,530		
Percentage of increase[e]	0.2	1.4		

SOURCE: BLM, 1979.

a. Percentage of increase in total ranch grazing (7 months) due to increase in BLM AUMs.

b. It is assumed that the operator would take advantage of increase in AUMs by holding over calves to be sold as yearlings.

c. Figures have been rounded to the nearest $5.

d. The extent to which cash income is increased by an increase of one AUM, or value of one more AUM to ranch enterprise.

e. Percentage of increase in net cash income with increased AUMs.

TABLE AP22-9

INCREASED NET CASH INCOME FOR A 2,000-COW/CALF/YEARLING RANCH UNIT

Item	Percentage of Grazing Increase[a]			
	More than 0 to 0.9	1.0 to 4.9	5.0 to 9.9	10 to 15
Increase--average number of AUMs	119	372	0	0
Increased costs[b]				
Hay Purchase	$ 1,100	$ 3,410		
Supplemental Feed	240	744		
BLM Grazing Fee	180	562		
Miscellaneous expenses	100	310		
Total	$ 1,620	$ 5,026		
Increased revenue	$ 2,700	$ 8,370		
Increased cost	$ 1,620	$ 5,026		
Increased net cash income[c]	$ 1,080	$ 3,340		
Increase per AUM[d]	$ 9.08	$ 8.98		
Net cash income				
Before increase	$257,050	$257,050		
After increase	258,136	260,390		
Percentage of increase[e]	.4	1.3		

SOURCE: BLM, 1979.

a. Percentage of increase in total ranch grazing (7 months) due to increase in BLM AUMs.

b. It is assumed that the operator would take advantage of increase in AUMs by holding over calves to be sold as yearlings.

c. Figures have been rounded to the nearest $5.

d. The extent to which cash income is increased by an increase of one AUM, or value of one more AUM to ranch enterprise.

e. Percentage of increase in net cash income with increased AUMs.

TABLE AP22-10

GENERAL COST FACTORS FOR ALL ALTERNATIVES

Annual Maintenance Costs	Cost/Unit
Fence	$20.00 per mile
Pipeline	26.40 per mile
Springs	50.00 per year
Wells	30.00 per year
Tanks	7.00 per year
Cattleguards	20.00 per year
Replacement Costs--Materials and Labor	
Fence	$2,200.00 per mile
Pipeline	1,200.00 per mile
Springs	1,800.00 per spring
Wells	8,000.00 per well
Tanks	450.00 per tank
Cattleguards	1,700.00 per cattleguard
Spraying	14.00 per acre
Burning	2.50 per acre
Plowing and seeding	35.00 per acre
Frequency of Replacement	**Times Item Will Need to be Replaced or Redone during 25-Year Period**
Fence	1
Pipeline	1
Springs	1
Wells	0
Tanks	1
Cattleguards	0
Spraying	2
Burning	2
Plowing/Seeding	2

SOURCE: BLM, 1979.

TABLE AP22-11

TOTAL MAINTENANCE/REPLACEMENT COSTS OVER 25-YEAR PERIOD FOR EACH ALTERNATIVE

Alternative A: The Proposed Action

	Maintenance Costs	Total Cost for 25 Years (in 1978 Dollars)
Fence	$20 per mile per year, 25 years, 192.6 miles	$ 96,300
Pipeline	$26.40 per mile per year, 25 years, 79 miles	52,140
Springs	$50 per unit per year, 25 years, 61 units	76,250
Wells	$30 per unit per year, 25 years, 40 units	30,000
Tanks	$7 per unit per year, 25 years, 189 units	33,075
Cattleguards	$20 per unit per year, 25 years, 23 units	11,500
Total		$ 299,265

Item	Times to Replace in 25 Years	Replacement Costs (materials and labor)	
Fence	1	$2,200 per mile, 192.6 miles	$ 423,720
Pipeline	1	$1,200 per mile, 79 miles	94,800
Springs	1	$1,800 per unit, 61 units	109,800
Tanks	1	$450 per unit, 189 units	85,050
Spray	2	$14 per acre, 6,283 acres	175,924
Burn	2	$2.50 per acre, 1,800 acres	9,000
Plow/seed	2	$35 per acre, 1,331 acres	93,170
Total			$ 991,464
Total for Alternative A for 25-year period			$1,290,729

Alternative B: Limited Action

	Maintenance Costs	Total Cost for 25 Years (in 1978 Dollars)
Fence	$20 per mile per year, 25 years, 17 miles	$ 8,500
Pipelines	$26.40 per mile per year, 25 years, 13 miles	8,580
Springs	$50 per unit per year, 25 years, 3 units	3,750
Wells	$30 per unit per year, 25 years, 3 units	2,250
Tanks	$7 per unit per year, 25 years, 21 units	3,675
Cattleguards	$20 per unit per year, 25 years, 2 units	1,000
Total		$ 27,755

TABLE AP22-11, page 2

Alternative B: Limited Action (continued)

Item	Times to Replace in 25 Years	Replacement Costs (materials and labor)	
Fence	1	$2,200 per mile, 17 miles	$ 37,400
Pipeline	1	$1,200 per mile, 13 miles	15,600
Spring	1	$1,800 per unit, 3 units	5,400
Tanks	1	$450 per unit, 21 units	9,450
Spray	2	---	---
Burn	2	$2.50 per acre, 660 acres	3,300
Plow/seed	2	---	---
Total			$ 71,150
Total for Alternative B for 25-year period			$ 98,905

Alternative C: Improved Watershed Values and Wildlife Habitat

	Maintenance Costs	Total Cost for 25 Years (in 1978 Dollars)
Fence	$20 per mile per year, 25 years, 300 miles	$ 150,000
Pipeline	$26.40 per mile per year, 25 years, 79 miles	52,140
Springs	$50 per unit per year, 25 years, 61 units	76,250
Wells	$30 per unit per year, 25 years, 40 units	30,000
Tanks	$7 per unit per year, 25 years, 189 units	33,075
Cattleguards	$20 per unit per year, 25 years, 30 units	15,000
Total		$ 356,465

Item	Times to Replace in 25 Years	Replacement Costs (materials and labor)	
Fence	1	$2,200 per mile, 300 miles	$ 660,000
Pipeline	1	$1,200 per mile, 79 miles	94,800
Spring	1	$1,800 per unit, 61 units	109,800
Tanks	1	$450 per unit, 189 units	85,050
Spray	2	$14 per acre, 2,900 acres	81,200
Burn	2	$2.50 per acre, 1,022 acres	5,110
Plow/seed	2	$35 per acre, 2,150 acres	150,500
Total			$1,186,460
Total for Alternative C for 25-year period			$1,542,925

TABLE AP22-11, page 3

Alternative D: Accelerated Livestock Forage Development

	Maintenance Costs	Total Cost for 25 Years (in 1978 Dollars)
Fence	$20 per mile per year, 25 years, 192 miles	$ 96,000
Pipeline	$26.40 per mile per year, 25 years, 82 miles	54,120
Springs	$50 per unit per year, 25 years, 61 units	76,250
Wells	$30 per unit per year, 25 years, 40 units	30,000
Tanks	$7 per unit per year, 25 years, 189 units	33,075
Cattleguards	$20 per unit per year, 25 years, 23 units	11,500
Total		$ 300,945

Item	Times to Replace in 25 Years	Replacement Costs (materials and labor)	
Fence	1	$2,200 per mile, 192 miles	$ 422,400
Pipeline	1	$1,200 per mile, 82 miles	98,400
Spring	1	$1,800 per unit, 61 units	109,800
Tanks	1	$450 per unit, 189 units	85,050
Spray	2	$14 per acre, 36,160 acres	1,012,480
Burn	2	$2.50 per acre, 30,745 acres	153,725
Plow/seed	2	$35 per acre, 14,483 acres	1,013,810
Total			$2,895,665
Total for Alternative D for 25-year period			$3,243,860

Alternative E: No Action

The only cost would be a one-time cost to alter 260 miles of fence at $20 per mile	$ 5,200

Alternative F: Elimination of Livestock Grazing from Public Lands

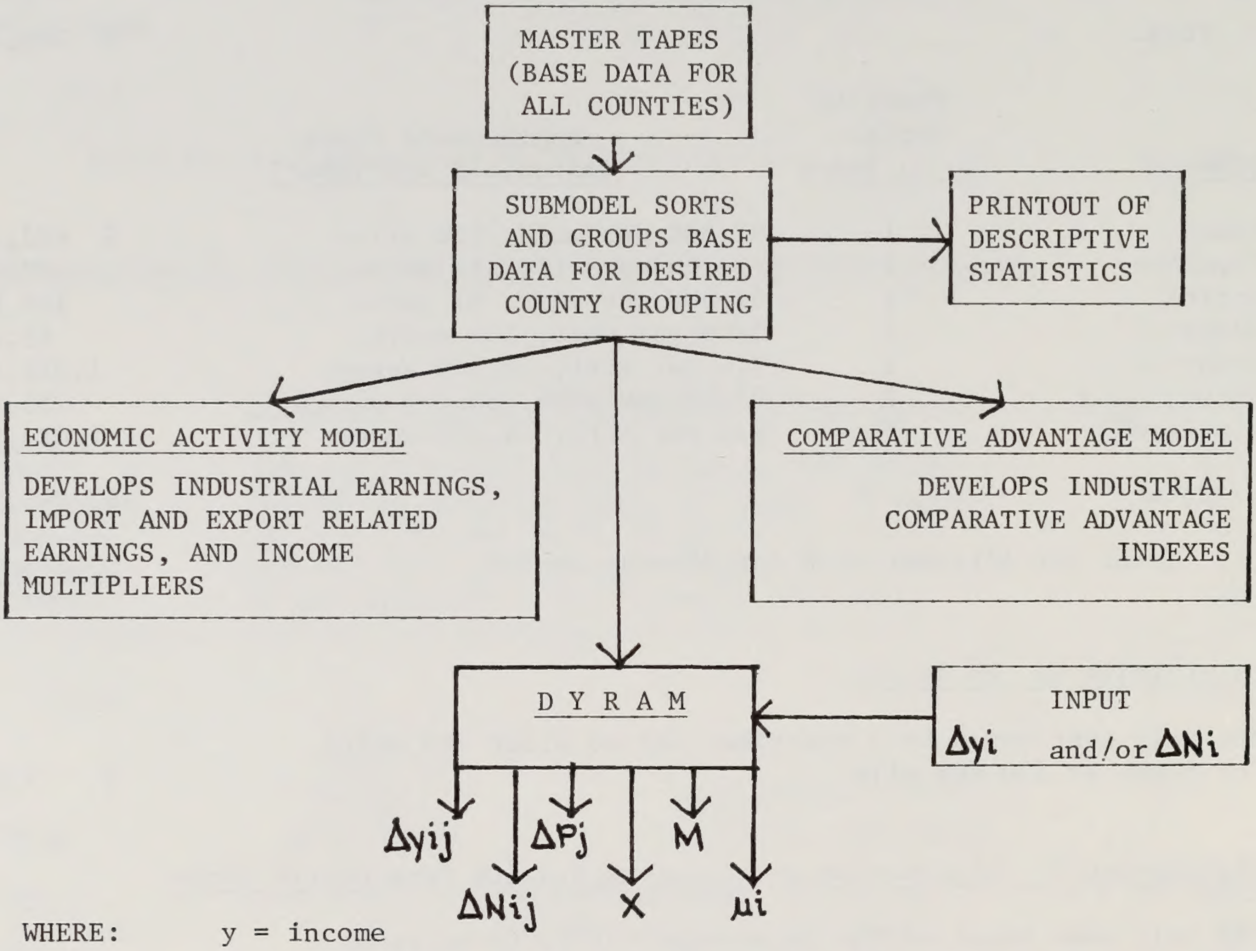
The only cost would be the maintenance of 2,700 miles of fence at $20 per mile per year, 25 years	$1,350,000

SOURCE: BLM, Montana State Office, Butte District office, and Dillon Resource Area, 1979.

APPENDIX 23: DYNAMIC REGIONAL ANALYSIS MODEL (DYRAM)

DYRAM is an economic model that traces impacts from initial changes in income and/or employment for a given industrial sector throughout the economy of the study area. More specifically, DYRAM defines the level of growth resulting from a change in income and/or employment and allocates that growth among sectors and over time periods. It is designed to run in conjunction with other components of the BLM socioeconomic data system (SEDS).

Following is an abbreviated schematic diagram of DYRAM and other related SEDS components. A more complete mathematical explanation of the model can be found in The Annals of Regional Science, November 1975, pp. 44-50.


MASTER TAPES (BASE DATA FOR ALL COUNTIES)
SUBMODEL SORTS AND GROUPS BASE DATA FOR DESIRED COUNTY GROUPING
PRINTOUT OF DESCRIPTIVE STATISTICS
ECONOMIC ACTIVITY MODEL
DEVELOPS INDUSTRIAL EARNINGS, IMPORT AND EXPORT RELATED EARNINGS, AND INCOME MULTIPLIERS
COMPARATIVE ADVANTAGE MODEL
DEVELOPS INDUSTRIAL COMPARATIVE ADVANTAGE INDEXES
DYRAM
INPUT
Δy_i and/or ΔN_i
Δy_{ij}
ΔN_{ij}
ΔP_j
X
M
μ_i

WHERE:
y = income
N = employment
P = population
X = export related earnings
M = import related earnings
μ = income multipliers
i - 1,...., 16 industries
j = 1,...., 5 periods

APPENDIX 24:

METHODOLOGY FOR THE WATERSHED ANALYSIS OF PUBLIC LANDS

Each allotment was evaluated on the ground by soil scientists and hydrologists. Present watershed conditions were evaluated on the basis of overland erosion, stream bank erosion, sediment, ground cover, and composition, with the use of professional judgment and existing data. The impact of each alternative on each allotment was then determined. Pluses, minuses, or zeros were assigned to components that deal with watershed condition (composition, infiltration rates, permeability, and organic matter accumulation).

Each allotment was evaluated by alternative with procedures for estimating sediment yield developed by the Pacific Southwest Inter-Agency Committee (PSIAC). Appendix 15 displays the results of the watershed analysis by allotment, by alternative. A more detailed analysis of each allotment is on file in the Dillon Resource Area office of the Bureau of Land Management, Dillon, Montana.

GLOSSARY/REFERENCES/INDEX

Glossary

ACCELERATED EROSION. The group of natural processes, including weathering, dissolution, abrasion, corrosion, and transportation, by which earthy or rocky material is removed from any part of the earth's surface. (See "Pedestaling," "Rill Erosion," "Sheet Erosion," and "Gully Erosion.")

ACTUAL USE. The true amount of grazing in AUMs, based on the numbers of stock and grazing dates submitted by the livestock operator and confirmed by periodic field checks by the BLM.

ADJUSTMENTS IN NUMBERS. Change (increase or decrease) of livestock numbers to conform to the amount of forage produced in an area considering other multiple uses.

AESTHETICS. Dealing with the sense of the beautiful and with judgments concerning beauty.

ALLOTMENT. An area of land where one or more individuals graze their livestock. It generally consists of BLM lands but may include parcels of private or state-owned lands. The number of livestock and season(s) of use are stipulated for each allotment. An allotment may consist of several pastures or may be only one pasture.

ALLOTMENT MANAGEMENT PLAN (AMP). A concisely written program of livestock grazing management, including supportive measures if required, designed to attain specific management goals in a grazing allotment.

ALLOWABLE USE. Maximum amount of grazing in AUMs allowed in any given year or grazing season, based mainly on surveyed livestock grazing.

ALLUVIAL. Pertaining to or composed of any sediment deposited by flowing water (alluvium), as in a river bed.

ALLUVIUM. Soil and rock debris deposited by streams.

ANIMAL UNIT. A standardized unit of measurement for range livestock which is equivalent to one cow or one horse or five sheep, all over six months of age.

ANIMAL UNIT MONTH (AUM). A standardized unit of measurement of the amount of forage necessary for the complete sustenance of one animal unit for a period of one month; also, a unit of measurement of grazing privileges which represents the privilege of grazing one animal for a period of one month.

APPRECIATION. Increase in cost, price or value over the cost, price or value from a previous time or period.

AQUATIC. Living or growing in or on the water.

AQUIFER. A formation, group of formations, or part of a formation that contains enough saturated permeable material to yield significant quantities of water to wells and springs.

ASPECT. 1. The orientation of a slope with respect to the compass; a position facing or fronting a particular direction. 2. The visual first impression of vegetation at a particular time or as seen from a specific point.

AUXIN. A class of substances that, in minute amounts, regulate or modify the growth of plants.

AVAILABLE WATER CAPACITY. The portion of water in a soil that can be readily absorbed by plant roots. It is rated on the basis of soil characteristics that influence the ability of the soil to hold water, such as content of organic matter, soil texture, and soil structure. Soils in an arid climate necessarily have low available water capacity because so little water is added to the soil as precipitation.

BASE PROPERTY. Those lands in a ranching enterprise which are owned or under long-term control of the operator and have the capability to sustain the number of livestock for a specified time period for which a grazing privilege is sought (base property requirement).

BASE PROPERTY QUALIFICATIONS. Qualifications or privileges that are directly attached to or supported by base property. The maximum amount of grazing privileges on federal range property allowable to base properties.

BASIN. A closed geologic structure in which the beds dip toward a center; the youngest rocks are at the center of a basin and are partly or completely ringed by progressively older rocks.

BEDROCK. The relatively solid rock that underlies unconsolidated sediments or surface materials.

BEST MANAGEMENT PRACTICES (BMPs). Land and resource conservation practices adopted by BLM or state governments to reduce nonpoint source water pollution. Such practices may include modified grazing systems, contour furrowing, special post-mining reclamation techniques, cable logging systems, etc.

BIOLOGICAL CONTROL. Control of pests by means of living organisms like predators, parasites, and disease-producing organisms.

BROWSE. As a verb, to consume or to feed on (a plant); as a noun, the tender shoots, twigs, and leaves of trees and shrubs, often used as food by cattle, deer, elk, and other animals.

BULK DENSITY, SOIL. The mass of dry soil per unit bulk volume. The bulk volume is determined before drying to constant weight at 105 degrees Centigrade.

CALF CROP. The number of calves weaned from a given number of cows bred, usually expressed in percentages.

CARCINOGENICITY. The quality of producing or tending to produce cancer.

CARRYING CAPACITY. A maximum number of animals that can survive on a land over a long term.

CASH FLOW. Any flow of cash in or out of the ranch business.

CHANGING SEASON OF USE. Adjusting the time livestock grazing is permitted on a range area on the basis of type of vegetation or state of vegetative growth.

CHANNEL (watercourse). An open conduit either naturally or artificially created, which periodically or continuously contains moving water or which forms a connecting link between two bodies of water.

CHANNEL STABILITY. A relative term describing a channel's condition with respect to erosion or movement of the channel walls or bottom due to water flows.

CHISEL. To break up soil using narrow tools. It may be performed at other than the normal plowing depth.

CLASS OF USE. The kind of domestic animals that are allowed to graze on a specific unit of range, as designated by permit, i.e., cattle, sheep, horses.

CLIMAX VEGETATION. The final vegetative community that emerges after a series of successive vegetational stages and perpetuates itself indefinitely unless disturbed by outside forces.

COOL SEASON PLANT. A plant that makes most or all of its growth during winter and early spring.

COMMUNITY. A group of organisms that form a distinct ecological unit. Such a unit may be defined in terms of plants, animals, or both.

COMPACTION. The process of packing firmly and closely together; the state of being so packed; e.g., mechanical compaction by livestock or vehicular activity. Soil compaction results from particles being pressed together, so that the volume of the soil is reduced. It is influenced by the soils' physical properties, moisture content, and the type and amount of compactive effort.

COMPOSITION. The relative proportions of various plant species in the total cover on a given area.

CONSTANT DOLLARS. Dollars adjusted for inflation. In this report, all dollar volumes are given in terms of the value of the dollar in 1978.

COW-CALF OPERATION. A cattle ranch business that sells weaned calves at about 9 months of age.

COW-CALF-YEARLING OPERATION. A cattle ranch business that sells weaned calves and yearlings.

CRUCIAL WILDLIFE HABITAT. Parts of the habitat that are necesary to sustain a population at critical periods of its life cycle. Often limiting habitat for a population, such as winter habitat, breeding habitat, etc.

CULTURAL RESOURCES. A term that includes resources of historical, archaeological, or architectural significance, which are fragile, limited, and nonrenewable portions of the human environment.

CURRENT YEAR'S GROWTH. The amount of vegetative growth that occurs in the period of one year.

CUSTODIAL MANAGEMENT. Minor degree of management effort applied to regulating livestock use on a range area. Generally, custodial management involves situations where the public land is a small part of the total grazing area and/or other resources are limited. Usually only livestock numbers, kind of animal, and grazing season are specified by the BLM.

DECREASER PLANT. A plant species of the original vegetation that will decrease in relative abundance with continued overuse.

DEFERMENT. Withholding of livestock grazing until a certain stage of plant growth is reached, usually maturity of seed.

DEFERRED GRAZING. The discontinuance of livestock grazing on an area for a specified period of time during the growing season to promote plant reproduction, establishment of new plants, or restoration of vigor by old plants.

DEFERRED ROTATION GRAZING. The discontinuance of livestock grazing on various parts of a range in succeeding years, allowing each part to rest successively during the growing season to permit seed production, establishment of seedlings, or restoration of plant vigor.

DEFOLIATE. To deprive (a tree or other plant) of leaves.

DEPRECIATION. As used in this report, it is the annual expenses incurred in writing off a cost of a depreciable asset over its useful life.

DESIRABLE PLANTS. Plants which are palatable and productive forage species. They are often dominant under or near climax conditions, are long-lived, and have deep fibrous roots to protect the watershed against erosion. This category includes the important key species (grasses, forbs, and browse) which are to be maintained or increased by intensive livestock management.

DIRECT INCOME. Income that can be charged to a specific source.

DISTRIBUTION. The uniformity of livestock grazing use over a range area. It is affected by water availability, topography, and type and palatability of vegetation.

DRAINAGE. Better termed internal soil drainage. It is that property of a soil that permits the downward flow of excess water, and is reflected in the frequency and duration of periods of water saturation. It is influenced by the physical characteristics of the soil profile, the underlying layers, and the depth of the water table.

DRAINAGE CLASSES (of soils).

Very Poorly Drained. Water is removed from the soil so slowly that free water remains at or near the surface during most of the growing season. Soils of this drainage class occupy level or depressed sites and are frequently ponded.

Poorly Drained. Water is removed from the soil so slowly that the soil remains wet, and the water table remains near the surface during a large part of the year.

Somewhat Poorly Drained. Water is removed from the soil slowly enough to keep the soil wet for significant periods during the growing season.

Moderately Well-Drained. Water is removed from the soil somewhat slowly during some periods. The soil is wet for a small part of the growing season.

Well-Drained. Water is removed from the soil readily but not rapidly. Water is available for plant growth through most of the growing season, and wetness does not inhibit growth of roots.

Somewhat Excessively Drained. Water is removed from the soil rapidly. Soils may be shallow or sandy and rapidly pervious. Some are so steep that much of the water they receive is lost in runoff.

Excessively Drained. Water is removed from the soil very rapidly. These soils are commonly coarse textured, rocky, shallow, or steep.

ECLIPSE MOLT. A post-breeding season molt in waterfowl species during which the birds are flightless. Males of some species assume female-like plumage.

ECOLOGIC RANGE CONDITION. See "Range Condition Class."

ECOLOGY. A study of animals and plants in their relation to each other and to their environment.

ECOSYSTEM. The interacting system of a biological community and its nonliving environment. Its functioning involves the circulation of matter and energy between organisms and their environment.

EDAPHIC. The chemical and physical characteristics of a given water and soil environment without reference to climate.

EDGE EFFECT. Refers to the fact that wildlife populations are generally highest in the areas where a variety of habitats are available in a relatively small area; that is, where there is much edge.

EFFECTIVE ROOTING DEPTH. The distance from the mineral surface to any layer in the soil that is highly restrictive to air, water, and root movement. The failure of roots to penetrate some soil horizons may also be due to deficiences of moisture, nutrients, or oxygen or to unfavorable physical conditions. Effective rooting depth is recognized where roots change in abundance from common to few in the soil profile over a distance of 5 to 8 cm (2 to 3 inches).

ELIMINATION OF GRAZING. Relinquishment or cancellation of livestock grazing use on lands currently being grazed by livestock.

ENDANGERED OR THREATENED STATUS. Determined for plants and animals by any one or a combination of the following factors:

1. The present or threatened destruction, modification, or curtailment of its habitat or range.
2. Overutilization for commercial, sporting, scientific, or educational purposes.
3. Disease or predation.
4. The inadequacy of existing regulatory mechanisms.
5. Other natural or human-caused factors affecting its continued existence.

ENDEMIC. The normal population level of a species (in contrast with epidemic) common to or restricted to a certain area. Peculiar to particular locality, native or indigenous.

ENVIRONMENT. The surrounding conditions, influences, or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.

ENVIRONMENTAL ASSESSMENT RECORD (EAR). A concisely written record of environmental factors in land management actions.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A written analysis of the impacts of a proposed project (e.g., grazing program) on the environment.

EPHEMERAL STREAM. A stream that flows only after rains or during snowmelt.

EQUITY CAPITAL INVESTMENT. The net value of the ranch property obtained by subtracting from its total value the amount owed on it.

EROSION CONDITION CLASSES. Expression of current erosion activity by use of the following ratings (soil surface factor): stable, 0-20; slight, 21-40; moderate, 41-60; critical, 61-80; severe, 81-100.

EROSION SUSCEPTIBILITY. The susceptibility of a soil to erosion when no cover is present. The rate of soil displacement depends on the physical properties of the soil, rainfall intensity, and slope gradient.

ESCAPE COVER. Vegetation or other obstacles (e.g., topography) that provide an area where small mammals may escape from predators or inclement weather.

ESSENTIAL ELEMENT. A chemical element required for the normal growth of plants.

EVAPORATION. Loss of water directly from the land surface (or water surface) to the atmosphere.

EXCELLENT CONDITION (of range). See "Range Condition Class."

EXPOSURE. Direction of slope in respect to points of the compass.

FAIR CONDITION (of range). See "Range Condition Class."

FAULT. A fracture surface in rocks, along which movement of rock on one side has occurred with reference to rock on the other side.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA). Public Law 94-579, October 21, 1976, often referred to as the BLM "Organic Act," which provides the majority of the BLM's legislated authority, direction, policy, and basic management guidance.

FEDERAL LANDS. Lands owned by the United States, without reference to how the lands were acquired or what federal agency administers the lands, including mineral estates or coal estates underlying private surface, but excluding lands held by the United States in trust for Indians, Aleuts, or Eskimos.

FOOD CHAIN. Refers to the fact that while a given species may prey upon a species below it in the "food chain," it in turn may be preyed upon by species above it in the food chain.

FORAGE. Vegetation of all forms available for animal consumption.

FORAGE ACRE. The number of acres in a specific area (such as a pasture or an allotment) completely covered by forage.

FORAGE ACRE REQUIREMENT (FAR). The number or fraction of forage acres necessary to support and maintain an animal for a specified period of time.

FORB. A broadleaved herb that is not a grass or grasslike.

FROST ACTION. The heaving of soil as freezing progresses and the excessive wetting and loss of soil strength during the subsequent thaw. Soils that are high in silt (0.05 - 0.02 mm) and very fine sand (0.10 - 0.05 mm) have the greatest potential for frost action.

FRY. Young, recently hatched fish.

GEOLOGIC EROSION. Wearing away of the earth's surface by water, ice, or other natural elements under natural environmental conditions of climate and vegetation.

GOOD CONDITION (of range). See "Range Condition Class."

GRAZING CAPACITY. The maximum stocking rate possible without damage being induced to vegetation or related resources.

GRAZING CYCLE. The number of years required to apply all of the treatments in the grazing formula to each pasture of the allotment; that is, the completion of one full cycle of yearly schedules back to the point of beginning.

GRAZING DISTRICT. An administrative subdivision of the rangelands under jurisdiction of the Bureau of Land Management, established by the Taylor Grazing Act.

GRAZING PERMIT. See "Permit."

GRAZING SYSTEM. A systematic sequence of grazing use and nonuse of an allotment to reach identified multiple use goals or objectives by improving the quality and quantity of the vegetation.

GRAZING TREATMENT. Under a rest-rotation or deferred rotation grazing system, grazing or resting a particular unit of land (usually a pasture) at particular times each year to attain particular vegetative goals.

GROUND COVER. Vegetation, mulch, litter, rocks, etc.

GROUNDWATER. Subsurface water in the saturated zone in rocks.

GULLYING. The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from this narrow area to considerable depths, ranging from 0.5 meter (1.6 feet) to as much as 25 to 30 meters (83 to 100 feet).

HABITAT. A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HABITAT REQUIREMENTS. Those items that an animal or plant requires for proper life cycles and growth. See also "Limiting Factor."

HERB. A seed-producing plant that does not develop persistent woody tissue.

HERBACEOUS. Pertaining to a flower plant or plant parts whose stem above ground does not become woody.

HERBAGE. Nonwoody vegetation; the succulent parts of herbaceous plants.

HERBICIDE. A chemical agent used to destroy or inhibit plant growth.

HERBIVORE. A plant-eating animal.

HUNTING DEMAND. Demand is the quantity of wildlife that was, or is expected to be, harvested by specific number of hunters under the management in effect. Demand is expressed either in quantities of harvestable animals and/or in terms of recreation days that would be provided.

HUNTING SUPPLY. The estimated quantity of harvestable wildlife that can usually be cropped from a population or unit of an area under the management in effect. Supply is expressed either in quantities of harvestable animals and/or in terms of recreation days that would be provided.

HYDROLOGIC SOIL GROUP. A class of soils that have similar general infiltration and water movement ability through the soil profile and bedrock. Hydrologic groups are used to estimate runoff after rainfall. Soil properties that influence infiltration rates and runoff are depth to a water table, water intake rate and permeability, and depth to layers of slowly permeable soil.

Group A. Soils that have high infiltration rates when thoroughly wetted. This group consists chiefly of deep, well-drained to excessively drained sand and/or gravel. Group A soils have a high rate of water transmission and would result in a low runoff potential.

Group B. Soils that have moderate infiltration rates when thoroughly wetted. This group consists of moderately deep to deep, moderately well-drained to well-drained soils with moderately fine to moderately coarse textures. Group B soils have a moderate rate of water transmission.

Group C. Soils that have slow infiltration rates when thoroughly wetted. This group consists chiefly of (1) soils with a layer that impedes the downward movement of water or (2) soils with moderately fine to fine texture and slow infiltration rate. Group C soils have a slow rate of water transmission.

Group D. Soils that have very slow infiltration rates when thoroughly wetted. This group consists chiefly of (1) clay soils with high swelling potential, (2) soils with a high permanent water table, (3) soils with claypan or clay layer at or near the surface, and (4) shallow soils over nearly impervious materials. Group D soils have a very slow rate of water transmission.

HYDROLOGY. The science dealing with the behavior of water as it occurs in the atmosphere, on the surface of the ground, and underground.

IGNEOUS ROCKS. Rocks formed by solidification of molten or fluid earth material. Intrusive igneous rocks solidified beneath the surface of the earth; extrusive igneous rocks emerged at the surface as molten material (e.g., lava) before solidifying.

INCREASER PLANT. A plant species of the original vegetation that will increase in relative abundance, at least for a time, under overuse.

INDIRECT BUSINESS ACTIVITY. The total income produced in other economic sectors (such as retail trade) by the receipt of income in one sector (such as the livestock industry).

INDUSTRY INCOME MULTIPLIER. Indicates how much income is stimulated into the economy of a region by an economic sector (e.g., government, agriculture), above and beyond the initial income produced by that sector.

INFILTRATION. The flow of a liquid into a substance through pores or other openings; connotes flow into a soil, in contrast with "percolation," which connotes flow through a porous substance. See also "Water Infiltration."

INSTANT STUDY AREA. One of the primitive or natural areas formally identified by the BLM prior to November 1, 1975.

INTENSITY OF USE. Amount of vegetation consumed by grazing herbivores, usually measured as a percentage of the annual growth.

INTENSIVE USE. A relative term referring to (1) a recreational feature or land unit which could attract and sustain a high level of use in terms of visitor days per unit area per year, or (2) a type of recreational activity usually requiring a relatively small land area per person.

INTERMITTENT STREAM. A stream that flows most of the time but ocassionally is dry or reduced to pool stage.

INTRODUCED SPECIES (plants). A species not a part of the original vegetation of the area in question.

INVADER. A plant species that was absent in the undisturbed portions of the original vegetation but that will become established there under conditions of disturbance or continued overuse.

INVERSION. An anomalous (abnormal) condition in the lower atmosphere in which temperature increases with increased elevation (normally termperature decreases with increased elevation).

INVERTEBRATE. An animal without a backbone. This group includes such animals as insects, clams, snails, and worms.

KEY SPECIES. 1. Forage species whose use serves as an indicator of the degree of use of associated species. 2. Species that must, because of their importance, be considered in the management program.

LARGE COMMERCIAL OPERATION. A cattle ranch business that has between 500 and 999 brood cows, with an average of 625 brood cows.

LAY-DOWN PANEL. Fencing constructed so that sections can be lowered from the vertical position when not needed, to prevent snow damage or permit big game movement.

LEASE. A contract by which interests are created or transfered to another for a specified period. All except recreation and public purpose leases require consideration of rent or some other compensation.

LIMITING FACTOR. An environmental component, such as food supply or nesting cover, which is in short supply. In order for a wildlife population to increase, its limiting factor must be changed.

LITTER. The uppermost layer of organic debris. It is composed of freshly fallen or slightly decomposed organic materials.

LIVE WATER. Water of a permanent, self-maintaining nature, as in a stream, lake, or pond, where there is an outflow and usually an inflow.

LIVESTOCK OPERATION. The management of an area of land so that a significant portion of the income is derived from the continuing production of livestock.

LIVESTOCK OPERATOR. A person who operates a livestock business.

LOAM. Soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

MACROINVERTEBRATES. Insects, annelids, mollusks, flatworms, roundworms, and crustaceans inhabiting the bottoms of lakes and streams.

MANAGEMENT FRAMEWORK PLAN (MFP). A planning decision document that establishes, for a given planning area, land use allocations, coordination guidelines for multiple use, and management objectives to be achieved for each class of land use or protection. It is the BLM's land use plan. An MFP is prepared in three steps: (1) resource recommendations, (2) impact analysis and alternative development, and (3) decision making.

MEDIUM COMMERCIAL OPERATION. A cattle ranch business that has between 200 and 499 brood cows, with an average of 325 brood cows.

MESIC HABITAT. A habitat having or characterized by a moderate amount of moisture available for the support of plant life.

METAMORPHIC ROCK. Rock masses altered in composition, texture, or structure by great heat or pressure.

MICROCLIMATE. Climatic conditions characteristic of a small area. Microclimates are influenced by local geography and vegetation and may be significantly different from regional climate in temperature, wind, length of growing season, or precipitation patterns.

MINE SPOILS. Nonmineral material removed in gaining access to mineral material in the process of mining. Used in this document to refer to soil material deposited on the surface from mining activity, when such material will not support vegetation growth.

MINIMUM ACCEPTABLE LEVELS OF STANDARDS OF PRODUCTION AND/OR PROTECTION. Levels of standards that are required by law or policy as a base that must be achieved or accomplished, as a minimum, when multiple use recommendations and resolution of resource use conflicts are considered.

MITIGATION. A method or process by which impacts from actions may become less injurious to the environment or the ecology of an area.

MOISTURE INFILTRATION. See "Water Infiltration."

MULTIPLE USE. Coordinated management of the various surface and subsurface resources, without permanent impairment of the productivity of the land, that will best meet the present and future needs of the people.

NATIONAL FOREST LANDS. Federal lands administered by the Forest Service, U.S. Department of Agriculture.

NET RANCH CASH INCOME. Gross ranch cash receipts minus cash operating expenses.

NET RANCH INCOME. Net ranch cash income minus depreciation. Represents personal income available to the operator and family, fair labor and management, and return to equity capital investment.

NONCOMPETITIVE MINERAL LEASING. Leases are issued to qualified applicants for lands not specifically known or presumed to contain mineral or petroleum deposits in quantity.

NONDEGRADATION. All streams and lakes of Montana are considered "high quality waters" and are subject to the state's nondegradation policy. The state requires that any state waters whose existing quality is higher than the established water quality standards shall be maintained at that high quality "unless it has been affirmatively demonstrated that a change is justifiable as a result of necessary economic or social development and will not preclude present and anticipated use of these waters."

NONUSE. Available grazing capacity in AUMs which is not permitted during a given time period.

NOXIOUS PLANT. An undesirable plant species that may render land unfit for use, damage livestock or wildlife, or be injurious to humans. Used in this document to describe plants declared noxious by state and county laws.

OCULAR RECONNAISSANCE SURVEY. A forage survey method that inventories vegetation by estimating total forage density, percentage of composition by species, and total usable forage in a given range type to determine the carrying capacity for livestock and wildlife.

OFF-ROAD VEHICLE (ORV). Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other terrain.

OPPORTUNITY COST. Costs as measured in terms of forgone opportunities to do or to buy other things.

OPPORTUNITY COST OF CAPITAL. The most favorable economic return that capital would accrue if it were invested in something other than the ranch operation.

OUTSTANDING NATURAL AREA. An area established to preserve scenic values and areas of natural wonder. The preservation of these resources in their natural condition is the primary management objective.

PALATABILITY. The relish with which a particular plant species or part is consumed by an animal. The palatability of a plant is usually related to its ecological significance as far as succession is concerned; that is, highly palatable plants are usually those which are a desirable species that decreases with increasing grazing pressure. Conversely, a low palatability usually characterizes a species that is least desirable and increases with increasing grazing pressure.

"PAPER LOSS" IN PERMIT VALUE. Loss in permit value caused by a reduction in the authorized use of BLM AUMs with no real reduction in the actual number of AUMs being grazed by livestock.

PARTIAL RANCH BUDGETING. Process of calculating the change in gross receipts and operating expenses caused by a change in such items as ranch size and/or amount of supplemental feeding.

PARENT MATERIAL. The unconsolidated and more or less chemically weathered mineral or organic matter from which soil develops.

PASSERINE BIRDS. The largest order of birds, consisting chiefly of songbirds.

PASTURE. As used in this document, a subdivision of a grazing allotment on BLM or other land within an allotment.

PEAK DISCHARGE. The highest rate of water flow occurring in a channel during a given flow event; e.g., thunderstorm runoff, daily snowmelt runoff, seasonal snowmelt runoff, etc.

PEDESTALING. A phenomenon of erosion where plants or rocks are left standing on pedestals of soil. Pedestals are formed because a rock or plant has protected the soil underneath from wind and water erosion.

PERCENTAGE OF DEPENDENCY. As used in this report, the amount of BLM grazing divided by the total seven-month grazing requirements of a ranch operation.

PERCENTAGE OF USE. Grazing use of current growth, usually expressed as a percentage of weight removed.

PERENNIAL FLOW. Streamflow that persists at least 90 percent of the year in well-defined channels, usually fed in part by spring flow.

PERENNIAL PLANT. A plant that has a life cycle of three or more years. Because of their longevity, it is desirable to base management on these species.

PERMEABILITY. The ease with which gases, liquids, or plant roots penetrate or pass through a layer of soil. Accepted as a measure of this property is the rate at which soil transmits water while saturated, and may imply how well water passes through the least permeable layer.

PERMIT (grazing). An authorization that permits the grazing of a specified number and kind of livestock on a designated area of BLM lands for a period of time, usually not more than one year.

PERMIT VALUE. The market value of a BLM grazing permit. In many instances this value is not broken out from the overall sale value of the ranch. Ranches are usually sold on the basis of dollars per animal unit (AU). Total ranch market value is dollars per AU times the total number of AUs that the ranch will support.

pH. The degree of acidity or alkalinity of a soil.

PHENOLOGY. The science concerned with periodic biological events in their relation to seasonal climatic changes. Plant phenology refers to dates of sprouting, flowering, seed production, and regrowth, as well as other observable occurrences in plant development. Essential in developing a grazing system which will compliment or conform with seasonal plant requirements.

PHYSIOLOGICAL NEEDS OF PLANTS. Requirements of vegetation to survive, the need to manufacture food, to replenish food reserves, to produce viable seed, and to have new seedlings become established.

PLANNING AREA. One or more complete planning units for which a land use plan is to be prepared.

PLANNING AREA ANALYSIS. This document analyzes requirements of the public, now and in the future, for lands and renewable and nonrenewable resources. It shows the significance of the lands within a planning area to users, operators, the community and the region. It is based on data in the URA, the socioeconomic profile, and other regional information.

PLANNING UNIT. A geographic unit within a Bureau of Land Management district that includes related lands, resources, and use pressure problems, which are considered together for resource inventory and planning.

PLANT COMPOSITION. See "Composition."

PLANT DENSITY. The number of individual plants per unit of an area. Refers to the relative closeness of individual plants to one another.

PLANT GROWTH REQUIREMENTS. Similar to physiological needs of plants but more specific; pertains to requirements of plants for rooting, water, minerals, light and air.

PLANT VIGOR. The relative well-being and health of a plant as reflected by its ability to manufacture sufficient food for growth and maintenance.

POISONOUS PLANT. A plant containing or producing substances that cause sickness, death, or a deviation from the normal state of health of animals.

POOR CONDITION (of range). See "Range Condition Class."

PRE-BOOT STAGE (of plant growth). Phenological stage when head of a plant is formed and has not emerged from the sheath.

PREDATOR. An organism that preys, kills, devours, or destroys another organism to live.

PREY. An animal taken by a predator as food.

PRIMITIVE AREA. An area in which no commercial development or use is permitted and no routes for motorized transportation are developed.

PROJECTED AUM AVAILABILITY. The amount of forage that is expected to be present and which could be used by livestock within a specified time frame based on the present condition, potential productivity, and the management system applied.

PROPER GRAZING CAPACITY. See "Proper Use."

PROPER MANAGEMENT. See "Proper Use."

PROPER USE. Allowing grazing to the degree and time of use of current year's growth which, if continued, will maintain or improve the range condition consistent with conservation of other natural resources. Proper use can be controlled by management to meet the physiological and phenological requirements for plant growth.

PROPER USE FACTOR (PUF). A degree and time of use of current year's growth which, if continued, will either maintain or improve the range condition consistent with conservation of other natural resources.

PROPOSED USE. Adjusted livestock stocking level that would be authorized following implementation of the proposed action. See also "Allowable Use."

PUBLIC LANDS. Any land and interest in land (outside of Alaska) owned by the United States and maintained by the Secretary of the Interior through the Bureau of Land Management (BLM).

PUBLIC PARTICIPATION. A component of the BLM planning system that provides the opportunity for citizens as individuals or groups to express local, regional, and national perspectives and concerns in the rule making, decision-making inventory, and planning with respect to public lands. This includes public meetings, hearings, or advisory boards or panels that may review resource management proposals and offer suggestions or criticisms for the various alternatives considered.

RANCH FUNDAMENTALISM. Belief, or set of beliefs, that ranching as a way of life is superior to any other lifestyle, notwithstanding poor financial returns from ranching.

RANGE ADJUDICATION. The allocation of grazing allotments, season of use, and numbers and class of livestock to qualified livestock operators.

RANGE CONDITION CLASS (ecologic). One of a series of arbitrary categories used to classify range condition, usually expressed as either excellent, good, fair, or poor in this report. The four classes express the percentage of the present plant community that is climax for the range site, as follows: excellent, 76 to 100 percent good, 51 to 75 percent; fair, 26 to 50 percent; and poor, 0 to 25 percent.

RANGE DEVELOPMENT. A structure, development, or treatment used to rehabilitate, protect, or improve the public lands to advance range betterment.

RANGE SITE. A range site is a distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. A range site is the product of all the environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differs from that of other range sites in the kind or proportion of species or in total production. So that a range site may be fully designated, a soil group name is combined with the precipitation zone and the geographic location; e.g., silty, 10-14 in. p.z., foothills and mountains, Montana. See also "Soil Groups."

RANGE TREND. The change in vegetation and soil characteristics as a direct result of environmental factors, primarily climate and grazing. Studies in range trend are used in combination with other studies to evaluate allotment management plans and grazing systems. Trend data are collected on key areas and rely on key species to represent the pasture or allotment. A trend index is used in evaluating trend data. This index is computed by adding the following factors: composition of key species, total cover of key species, number of seedlings of key species, and percentage of litter in the entire plot. Any change in range trend is reflected by a corresponding rise or decline in the trend index.

RANGE TYPE. A mapping unit used in range surveys. It is a relatively homogeneous classification unit based on abundance of vegetation, species composition, slope, exposure, kind of soil, and erosion.

RAPTORS. A functional group of birds including all birds of prey such as eagles, hawks, owls, and vultures.

REACH. A study portion or section of a stream.

RECHARGE. In groundwater, the process of replenishing the water in the zone of saturation or the amount of water that percolates to the zone of saturation.

RECREATION OPPORTUNITIES. A general categorization of leisure pursuits that occur in the outdoors.

RECREATION RESOURCES. Any natural resource or feature that contributes to outdoor leisure pursuits or experiences.

RELICT. As related to climax, fragments of currently existing flora in areas with a historical record of no disturbance and with the plant community assumed to be in near virgin condition.

RELIEF. The variations in elevation of any area of the earth's surface.

RENEWABLE RESOURCES. All of the products and physical values produced or contained within BLM lands that could be restored or replenished as they are used (e.g., wildlife, vegetation, water). Does not include resources such as minerals, soils, cultural artifacts, which are gone once used or destroyed.

REPRESENTATIVE RANCH BUDGET. Schedule of average costs, receipts, and income for a ranch representative of a given size category.

RESERVATION. A withdrawal, usually of a permanent nature; also, any federal lands which have been dedicated to a specific public purpose.

RESOURCES. All of the products and physical values produced or contained within the BLM lands, including natural resources such as timber, coal, oil.

REST. As used in this document, a grazing treatment under which no livestock are allowed to graze on a range area for one year or a particular portion of the growing season, so that plants are allowed to replenish their food reserves.

REST-ROTATION GRAZING SYSTEM. A grazing system providing for systematic and sequential grazing by livestock and resting from livestock use on a range area to provide for the production of livestock while simultaneously maintaining or improving the vegetation and soil fertility.

RILL EROSION. Erosion in which numerous small channels several inches deep are formed.

RIPARIAN. Situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to the plants of all types that grow along streams, around springs, etc.

ROAD. An access route that has been improved and maintained by hand or power machinery or tools to ensure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road.

ROTATION GRAZING. An orderly sequence of livestock use when each pasture is both grazed and deferred during the same year.

RUNOFF. Water that flows on the land surface from an area in response to rainfall or snowmelt. As used in this document, runoff from an area becomes streamflow when it reaches an intermittent or perennial watercourse.

SCENIC QUALITY. The quality of the scenery as determined through the use of the scenic evaluation process.

SEASON-LONG GRAZING. Grazing use throughout a specific season.

SEASON OF USE. The time of livestock grazing on a range area based on type of vegetation or stage of vegetative growth.

SEDIMENT. Soil, rock particles, and organic or other debris carried from one place to another by wind, water, or gravity.

SEDIMENT YIELD. The amount of soil moved from a given point to another point as a result of runoff.

SEDIMENTARY ROCK. A more or less compacted and coherent rock composed of sedimentary particles. Shale, sandstone, and limestone are sedimentary rocks derived respectively from mud, sand, and lime sediment.

SEDIMENTATION. The action or process of deposition of material borne by water, wind or glacier.

SEEDLINGS. Young plants.

SEEDRIPE. When seed is mature, usually late summer and early fall.

SHEET EROSION. The detachment of the material from the land surface by raindrop impact and its subsequent removal by prechannel or overland flow.

SHORT-DURATION, HIGH-INTENSITY GRAZING. High-intensity grazing permits short-duration grazing with the stocking rate higher than what would be considered normal. The purpose of this type of system is to obtain uniform use of all plants, desirable and undesirable alike, and to prevent regrazing on regrowth of the most desirable plants. This system allows desirable plants to compete for nutrients on an equal basis with less desirable plants.

SHRUB. A low woody plant, usually with several stems; may provide food and/or cover for animals.

SMALL COMMERCIAL OPERATION. A cattle ranch business that has between 1 and 199 brood cows, with an average of 130 brood cows.

SOIL. The unconsolidated mineral matter on the surface of the earth that has been subjected to and influenced by genetic and environmental factors of parent material, climate (including moisture and temperature effects), macro-and micro-organisms, and topography, all acting over a period of time and producing a product that differs from the material from which it is derived in many physical, chemical, biological, and morphological properties and characteristics. The immediate surface of the earth that serves as a natural medium for the growth of land plants.

SOIL ASSOCIATION. A group of defined and named taxonomic soil units occurring together in individual and characteristic patterns over a geographic region.

SOIL GROUPS. The following range soil groups occur in the study area:

I. Soil groups that can produce more herbage than ordinary range uplands because of plainly superior soil moisture availability.

WL = wetland. Lands where seepage, ponding, etc., raise the water table to above the surface during only a part of the growing season. Too wet for cultivated crops but too dry for common reed, cattails, or true aquatics.

Sb = subirrigated. Lands with an effective subsurface groundwater table and water rarely over the surface during the growing season.

II. Soil groups with no obvious soil or moisture limiting factors. The vegetation can make a normal response to climate.

Sa = sands. Sands and loamy sands more than 20 inches deep.

Sy = sandy. Coarse to fine sandy loams more than 20 inches deep.

Si = silty. Soils more than 20 inches deep of very fine sandy loam or silt loam. This includes soils with 2 inches or more loam or silt loam over clayey subsoils.

Cy = clayey. Granular clay loam, silty clay loam, silty clay, sandy clay or clay more than 20 inches deep.

III. Soil groups with characteristics or topographic features that limit moisture-holding capacity or affect infiltration rates.

TH = thin hilly. Loamy or clayey soils on steep or hilly landscapes (more than 20 percent slopes) with a thin "A" horizon and weak or no structure in the subsoil, but with potential root penetration deeper than 20 inches. It is usually calcareous but contains less than 15 percent calcium carbonate.

St = stony. Soils more than 20 inches deep with cobbles or stones occupying 40 to 80 percent of the surface.

SwC = shallow clay. Shallow granular clay soils that are 10 to 20 inches deep to underlying shale or nearly impervious clays.

SwG = shallow to gravel. Soils that are 10 to 20 inches deep to sandy gravel. Few roots penetrate deeper than 20 inches.

Sw = shallow. Soils 10 to 20 inches deep to hard rock or soft beds of decomposed granite, siltstone, or sandstone. Few roots penetrate deeper than 20 inches.

DC = dense clay. Relatively impervious deep nongranular clays. They may be overlain by thin ineffectual layers of other materials. The dispersed layer is very hard to extremely hard when dry, and very sticky when wet.

SOIL MOISTURE. Water held in the root zone by capillary action; part of the soil moisture is available to plant, part is held too tightly by capillary or molecular forces to be removed by plants.

SOIL SURFACE FACTOR (SSF). An expression of current erosion activity. Seven categories of surface features are considered in the examination of the area. Both wind and water are considered for each category. The categories are soil movement, surface litter, surface rock, pedestaling, rills, flow patterns, and gullies. Numerical values are assigned to each category, and these are totaled to determine the SSF. This value determines the erosion condition class of the area. See also "Erosion Condition Classes."

SPECIES OF SPECIAL INTEREST OR CONCERN. Animals not yet listed as endangered or threatened, but which are undergoing a status review. This may include animals whose populations are consistently and widely dispersed or whose ranges are restricted to a few localities, so that any major habitat change could lead to extinction. A species that is particularly sensitive to some external disturbance factors.

STAGNATION. The reduction in productivity of range plants that results from a lack of grazing.

STOCKING RATE. The degree to which a grazing unit is stocked with livestock, usualy expressed in AUMs. The stocking rate may be more or less than the carrying capacity.

STREAMFLOW. Water moving in stream channels.

STRUTTING GROUND. A traditional breeding area for grouse species where territorial males display and establish dominance. Synonymous with the term "lek."

SUBSTRATE. A surface on which a plant or animal grows or is attached.

SUCCESSION. The progressive development of the vegetation towards its highest ecological expression (climax).

SURFACE MANAGEMENT AGENCY. The federal agency with jurisdiction over the surface of federally owned lands containing coal deposits.

SURFACE WATER. Water standing on or moving across the land surface; includes streamflow, runoff, and ponded water.

SUSTAINED YIELD. The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.

TAXONOMIC. Refers to the established scientific categories into which organisms are classified, such as families, species, and classes.

TERATOGENICITY. A tendency to cause developmental malformations and monstrosities.

TEXTURE. The visual result of the tactile surface characteristics of an object.

THREATENED SPECIES. A species that the Secretary of the Interior has determined is likely to become endangered within the foreseeable future throughout all or most of its range. See also "Endangered or Threatened Status."

TILL. Glacial debris, either sorted (outwash) or unsorted (ground moraine).

TOPOGRAPHY. The exact physical features and configuration of a place or region; the detailed and accurate description of a place or region.

TRANSPIRATION. Process by which plants discharge water vapor to the atmosphere.

TRESPASS. The grazing of livestock on a range area without proper authority, and resulting from a negligent or willful act.

TOTAL DISSOLVED SOLIDS. A measure of the mineral and organic material dissolved in water. It is usually determined by evaporating a filtered volume of water and weighing the residue. The amount of residue is expressed as a proportion of the original sample in parts per million or milligrams per liter (mg/l).

UNALLOTTED LANDS. Lands which currently are not committed to livestock grazing use.

UNDESIRABLE PLANTS. Invaders, noxious, and low value forage plants. The aim in management is to improve range condition to a point where these species are replaced by desirable or intermediate species.

UNGULATE. Any of the group *ungulata,* which consists of the hoofed mammals, of which most are herbivorous and many are horned.

UNIT RESOURCE ANALYSIS (URA). A comprehensive display of physical resource data and an analysis of the current use, production, condition, and trend of the resources and the potentials and opportunities within a planning unit, including a profile of ecological values.

UTILIZATION. The proportion of current year's forage production that is consumed or destroyed by grazing animals, usually expressed as percentage. See also "Intensity of Use."

VEGETATION CONVERSION. Replacing one vegetative type with another by chemical or mechanical means, fire, or other methods.

VEGETATION COMPOSITION. The proportion of the total vegetative density provided by each species, usually expressed in percentage.

VEGETATION DENSITY. As viewed from above, the percentage of ground cover for the current year's growth of all vegetation.

VEGETATIVE REPRODUCTION. Production of new plants by an asexual method such as sprouting from roots.

VEGETATIVE TYPE. A plant community with distinguishable characteristics.

VERY LARGE COMMERCIAL OPERATION. A cattle ranch business that has 1,000 or more brood cows, with an average of 2,000 brood cows.

VISUAL RESOURCE MANAGEMENT CLASSES. Classification of landscapes according to the kinds of artificial structures and modifications that are acceptable to meet established visual goals.

VISUAL RESOURCES. The land, water, vegetation, animals, and other features that are visible.

WARM SEASON PLANT. A plant that makes most or all its growth during the spring and summer.

WATER INFILTRATION. Water penetration into the soil through pores of the soil. Rate and amount of infiltration is limited by size and abundance of pores and water absorption capacity of the soil. See also "Infiltration."

WATER TAP. A means of withdrawing water from an existing irrigation ditch or pipeline. A water right or permission to tap must be obtained prior to tapping.

WATERSHED. A basin or region draining into a creek, stream, river, river system, or body of water.

WELL-BEING. Condition of human happiness and health, measured objectively (with socioeconomic indicators) or subjectively (with individual perceptions).

WILDERNESS AREA. An area formally designated by Congress as a part of the National Wilderness Preservation System. Wilderness areas are generally undeveloped federal lands which retain their primeval character and influence without improvements or human habitation.

WILDERNESS STUDY AREA. A roadless area which has been found to have wilderness characteristics and which will be subjected to intensive analysis in the BLM planning system, and to public review, to determine wilderness suitability. Such an area is not yet the subject of a Congressional decision regarding its designation as wilderness.

WINTERKILL. Refers to the death of fish in small lakes and reservoirs due to oxygen depletion caused by excessive ice and snow cover that blocks sunlight and prevents photosynthesis in aquatic plants.

WINTER RANGE. Area occupied by animals during the winter months.

WITHDRAWAL. An action which withdraws described public lands from operation of certain laws, which are also described in the withdrawal order.

XERIC HABITAT. A habitat having or characterized by a low or deficient amount of moisture available for the support of plants.

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